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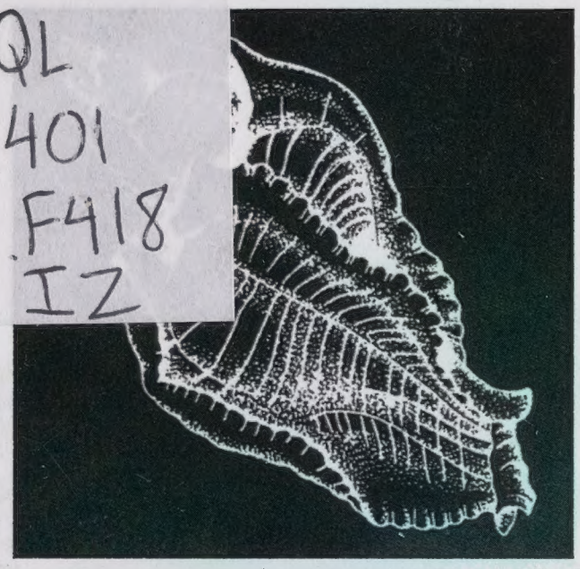

THE Festivus

Vol. 55(2) May 2023

A new deep water *Fasciolaria*

Siteconus from Southeast Africa

Amazing Andaman Sea *Murex*

Iconography of Brazilian Conidae

Quarterly Publication of the San Diego Shell Club

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THE FESTIVUS

A publication of the San Diego Shell Club

Volume: 55 May 2023 ISSUE 2

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FRONT COVER:

Live specimen of *Vexillum exasperatum* (Gmelin, 1791) *in situ*, with commensal polyps, on black sand adjacent to the USS Liberty wreck in Tulamben, Bali, Indonesia. (Photo courtesy of Charles Rawling) (Cover artistic credit: Rex Stilwill).

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A New Deep Water *Fasciolaria* (Fasciolariidae: Fasciolariinae) Tulip Shell from off the Dry Tortugas, Western Florida Keys, Florida

Edward J. Petuch [1] and David P. Berschauer [2]
[1] Department of Geosciences, Florida Atlantic University
Bocas Raton, Florida 33431 epetuch@fau.edu
[2] Museum Associate, Natural History Museum of Los Angeles County
shellcollection@hotmail.com

ABSTRACT A new species of True Tulip Shell in the genus *Fasciolaria* has been discovered in lobster traps set in deep water off the Dry Tortugas, western Florida Keys. This new Tulip Shell is closest to the widespread Carolinian Province-Caribbean Province *F. tulipa* (Linnaeus, 1758) but differs in having a proportionally shorter siphonal canal, in having a conspicuous striped color pattern and stronger raised cords on the siphonal canal, and by having sharply-angled spire whorls that bear prominent rounded knobs on the first postnuclear whorls. In this aspect, the coronated postnuclear whorls of the new species, here named *F. bittneri*, resemble those seen on the heavily-ornamented Calabrian Pleistocene species, *F. okeechobeensis* Tucker & Wilson, 1932, from the Bermont Formation of southern Florida.

KEY WORDS *Fasciolaria*, *F. bittneri*, Fasciolariidae, Dry Tortugas, Florida Keys

INTRODUCTION

The deeper water areas (30-100 m depths) off the Dry Tortugas, western Florida Keys, have long been known to house a rich molluscan fauna with a high level of biodiversity and containing numerous endemic species of considerable scientific interest (Petuch, 1987; Petuch and Myers, 2014; Petuch and Sargent, 2011; Petuch and Berschauer, 2020 at pp. 25-26, 56-57). Some of the recent malacological discoveries from this under-explored area include gastropods such as the muricids *Phyllonotus whymani* Petuch and Sargent, 2011 and *Murexiella kalafuti* Petuch, 1987, the eosiphonid *Manaria burkeae* García, 2008, the colubrariid *Bartschia frumari* García, 2008, the pisaniid *Hesperisternia sulzyckii* Petuch and Myers, 2014, the peristerniine fasciolariid *Leucozonia jacarusoi* Petuch, 1987, the scaphelline volute *Scaphella junonia elizabethae* Petuch and Sargent, 2011, the turrid *Strictispira redferni* Tippett, 2006, and bivalves such as *Lindapecten lindae* Petuch, 1999.

Ongoing collecting of specimens from lobster traps, set in the lower neritic environments around the Dry Tortugas, has recently yielded numerous specimens of a large species of *Fasciolaria* that was unlike any Tulip Shell ever seen from that area. Besides having conspicuous brown-striped siphonal canals and bright orange early whorls, these Tulip Shells also were unusual in having distinctly angled and coronated early whorls, sculpted with small rounded knobs. Numerous specimens of this remarkable fasciolariid were collected by Captain Dale Bittner of Key West, Florida, who immediately recognized them as something completely new to science. He subsequently sent several specimens to the junior author for study and it was determined that these remarkable shells constituted a new species, which is named *Fasciolaria bittneri* new species

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in this paper. The holotype of the new species is deposited in the type collection of the Department of Malacology, Natural History Museum of Los Angeles County, Los Angeles, California and bears LACM catalog number 3807.

SYSTEMATICS
Phylum Mollusca
Class Gastropoda
Order Neogastropoda
Superfamily Buccinoidea
Family Fasciolariidae
Subfamily Fasciolariinae
Genus *Fasciolaria* Lamarck, 1799

Fasciolaria bittneri Petuch and Berschauer, new species
(Plate 1, Figures A-F; Plate 3, Figure A)

Description. Shell of average size for genus, generally between 100 and 120 mm in length, fusiform, heavy and thickened, with elevated spire; shoulder of body whorl rounded, sloping; shoulders of spire whorls distinctly angled and stepped, subcarinate, especially on first 4 postnuclear whorls; first 3 postnuclear whorls ornamented with 10-12 prominent rounded and elongated knobs per whorl, producing distinct undulating appearance on shoulder angles; body whorl smooth and highly polished, ornamented with 4 low, rounded cords along subsutural area; subsutural cords prominent only on body whorl and becoming obsolete on first 4 postnuclear whorls; first 3 postnuclear whorls devoid of subsutural cords; aperture proportionally large, oval, having interior ornamented with very numerous fine, closely-packed cords, colored white to pale orange; columella with 3 large blade-like teeth, with anteriormost being the largest and best-developed; columellar callous and folds orange in color; siphonal canal proportionally short, narrow, ornamented with 12-14 large, prominent, raised, evenly-spaced coarse spiral cords; base color of body whorl varying from white to deep red-orange to chestnut brown, overlaid with 3 wide bands of large amorphous patches of dark red, brown, or black, one around shoulder and subsutural area, one around mid-body, and one around base of body whorl near siphonal canal juncture; white base color with wide red patches is most frequently-encountered color form; spire whorl color, regardless of body whorl color, always deep orange-red on first 4 whorls; base color of body whorl heavily overlaid with 18-20 dark brown, solid, narrow, evenly-spaced lines, many of which break up into series of dashes and small rectangular checkers on most individuals; areas between subsutural cords of body whorl shoulder and between individual cords of siphonal canal marked with single, very dark brown, prominent band, producing characteristic and conspicuous striped appearance; protoconch smooth, rounded, dome-like, composed of one and one-half whorls, colored bright yellow-orange.

Type Material. HOLOTYPE - length 115.1 mm, width 53.4 mm (LACM 3807); Paratype 1 - length 113.5 mm, width 52.7 mm (LACM 3808); three specimens in the collection of the senior author measuring between 104.0 and 111.0 mm in length (Paratypes 2-4); 12 specimens in the collection of the junior author measuring between 99.5 and 127.2 mm in length (Paratypes 5-16); and 6 specimens in the collection of Dale Bittner measuring between 107.6 and 115.6 mm in length (Paratypes 17-22).

Type Locality. The holotype and paratypes of the new species were collected from baited lobster traps set at an 18-33 meter range of depths north of the Dry Tortugas, western Florida Keys, Monroe County, Florida, at approximately Lat. N24° 53' 38", Long. W80° 17' 2". (Figure 1)

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Distribution. Presently known only from 18-33 meter depths off the Dry Tortugas, western Florida Keys, Monroe County, Florida. The new species may also be present within the 20-40 meter depth contour of the edge of the Florida Platform, north of the Dry Tortugas. (Figure 1)

Etymology. Named for Captain Dale Bittner, owner of the charter boat "Bait Stealer", of Key West, Florida, who collected the type specimens and recognized the species as being new to science.

Discussion. *Fasciolaria bittneri* is variable in color and is found in a brown-black color form (Plate 1, Figures A-B), a red color form (Plate 1, Figures C-D), and an orange-brown color form (Plate 1, Figures E-F). Of all the known living and fossil species, *Fasciolaria bittneri* is morphologically-closest only to the living *F. tulipa* and the Florida fossil *F. okeechobeensis* Tucker and Wilson, 1932; with the smooth body whorl and banded color pattern that is seen on most *F. tulipa* and with the distinctly-angled and heavily-coronated early whorls seen on the Bermont fossil *F. okeechobeensis* (shown here on Plate 2, Figures E, F; Plate 3, Figure C). The new species differs from *F. tulipa* in having a proportionally shorter and broader siphonal canal that is more heavily-ornamented with prominent large raised cords over the entire length, by having a conspicuous alternating light and dark striped pattern on the entire siphonal canal, in consistently having bright orange early whorls regardless of the main teleoconch color, and in having a wider and better-developed siphonal and parietal callus which is often orange in color, and in having sharply-angled and shouldered early whorls that are ornamented with distinct rounded knobs, producing coronated postnuclear whorls. The early whorls of the Calabrian fossil *F. okeechobeensis* are more elaborately sculpted than those of *F. bittneri*, having proportionally larger knobs and stronger spiral cords and ribs (Petuch, 1994). The new Florida Keys species may represent a living descendant of the Bermont Formation *F. okeechobeensis* that has managed to survive in the deeper water areas, where the marine climate was more stable during the extreme cold and low sea levels of the late Tarantian Age of the Late Pleistocene and the Greenlandian Stage of the early Holocene.

As presently understood, the genus *Fasciolaria* (*sensu stricto*) is represented by six described living species and nine described fossil species. The living taxa include: ***Fasciolaria tulipa*** (Linnaeus, 1758), which is widespread throughout the Carolinian Province, the Greater Antilles, and the northern half of the Caribbean Province (also known as a latest Pleistocene fossil from the late Tarantian Age Coffee Mill Hammock Member of the Fort Thompson Formation of southern Florida, shown here on Plate 2, Figures A-D; Plate 3, Figure B); ***Fasciolaria petuchi*** Crabos and Quieroz, 2023, which is restricted to the coast of Venezuela, from the Gulf of Venezuela to the Orinoco River (which was originally mistakenly referred as to the Venezuelan Pliocene fossil species, *F. hollisteri*; ***Fasciolaria bullisi*** Lyons, 1972, which is widespread throughout the Gulf of Mexico, in lower neritic and bathyal depths; ***Fasciolaria tephrina*** DeSouza, 2002, which is found in bathyal depths from the Bay of Honduras south to northern Colombia; ***Fasciolaria guyanensis*** Lyons and Snyder, 2016, which is restricted to the coast of northern South America, from Guyana, Suriname, and French Guiana to Amapa State, Brazil and the Mouth of the Amazon River; and the new species, ***Fasciolaria bittneri***, which is restricted to the southwestern edge of the Florida continental shelf off the Dry Tortugas, western Florida Keys. The genus *Fasciolaria* is not present, either as living or fossil taxa, in the

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Brazilian and Paulinian Molluscan Provinces to the south, along the Brazilian coast.

The known fossil species of *Fasciolaria* include: ***Fasciolaria semistriata*** Guppy, 1874, which is known only from the early Pliocene Gurabo Formation of the Dominican Republic (Pilsbry, 1922; Woodring, 1928); ***Fasciolaria mareana*** Hollister, 1962, known only from the Pliocene Mare Formation of Venezuela; ***Fasciolaria leura*** Woodring, 1928, known only from the early Pleistocene (Gelasian Age) Bowden Formation of Jamaica; ***Fasciolaria hollisteri*** Weisbord, 1962, known only from the Pliocene Mare Formation of Venezuela (Weisbord, 1962); ***Fasciolaria intermedia*** Guppy, 1874, which is known only from the upper beds of the Gurabo Formation of the Dominican Republic; ***Fasciolaria seminole*** Petuch, 1994, which is known only from the Fort Denaud Member of the Caloosahatchee Formation, early Pleistocene (early Gelasian Age) of southern Florida (see Petuch, 1994); ***Fasciolaria monocingulata*** Dall, 1890, known only from the Fort Denaud Member of the Caloosahatchee Formation, early Pleistocene (early Gelasian Age) of southern Florida; ***Fasciolaria calusa*** Petuch, 1994, known only from the Bee Branch Member of the Caloosahatchee Formation, early Pleistocene (middle Gelasian Age) of southern Florida; and ***Fasciolaria okeechobeensis*** Tucker and Wilson, 1932, known only from the middle Pleistocene (Calabrian Age) Bermont Formation of southern Florida (Petuch and Berschauer, 2021 for illustrations of these Floridian fossil species).

Two undescribed Pliocene species are also known, and include a small, heavily-sculptured shell from the coral reef facies of the late Piacenzian Age Fruitville Member, Tamiami Formation of southern Florida, and another heavily-sculptured species from the early Piacenzian Age Jackson Bluff Formation at Alum Bluff, Apalachicola River, in northwestern Florida. These paleospecies demonstrate that the genus was well-developed and widespread throughout Florida and the Caribbean Basin during both the Pliocene and Pleistocene.

ACKNOWLEDGMENTS

We thank Dale Bittner, captain of the charter fishing boat "Bait Stealer" of Key West, Florida, who collected the type lot of the new species in his traps, who recognized it as being new to science, and who kindly donated several specimens for study.

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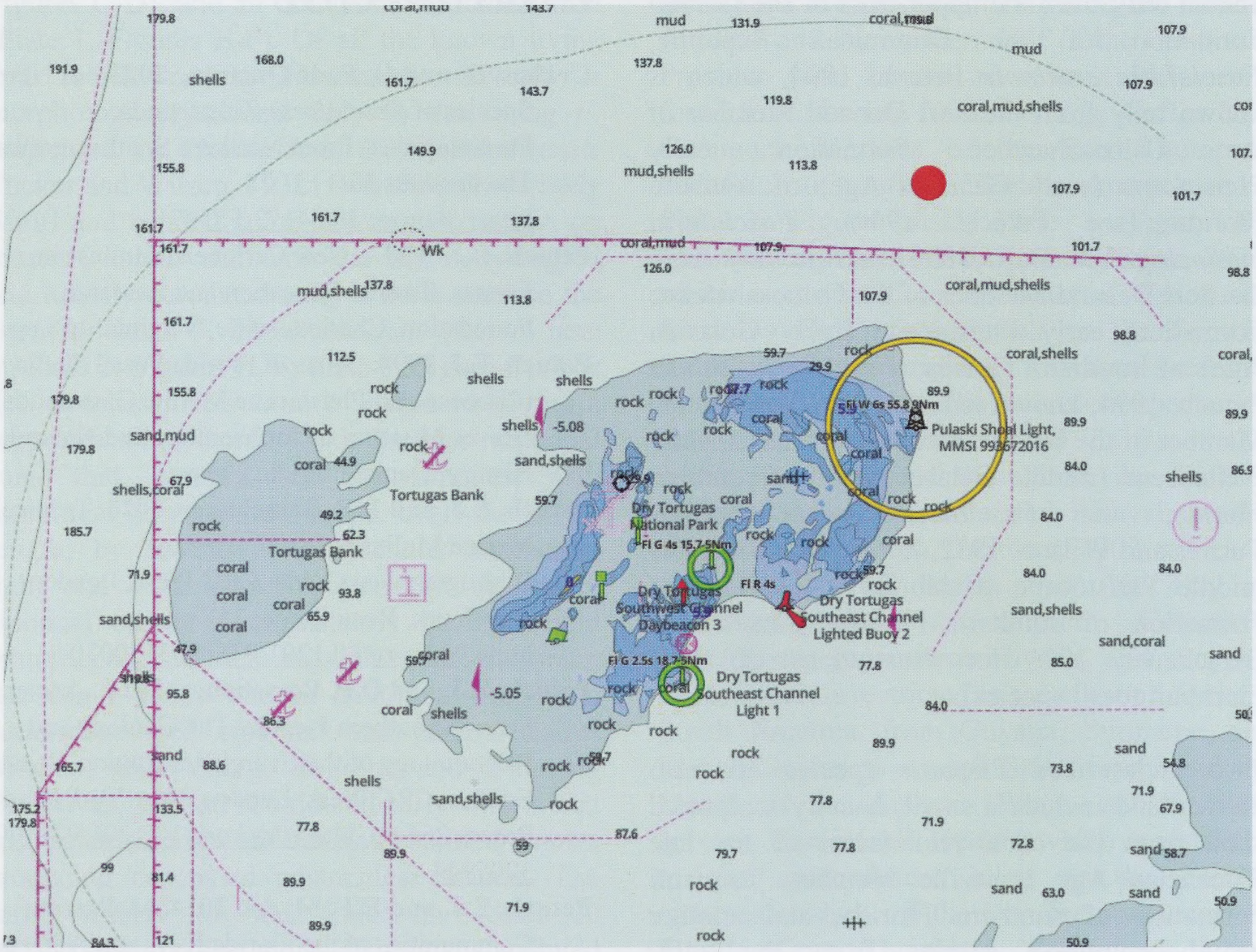

Figure 1. Map of the Dry Tortugas. The red dot indicates the approximate area where the type lot of *Fasciolaria bittneri* was found.

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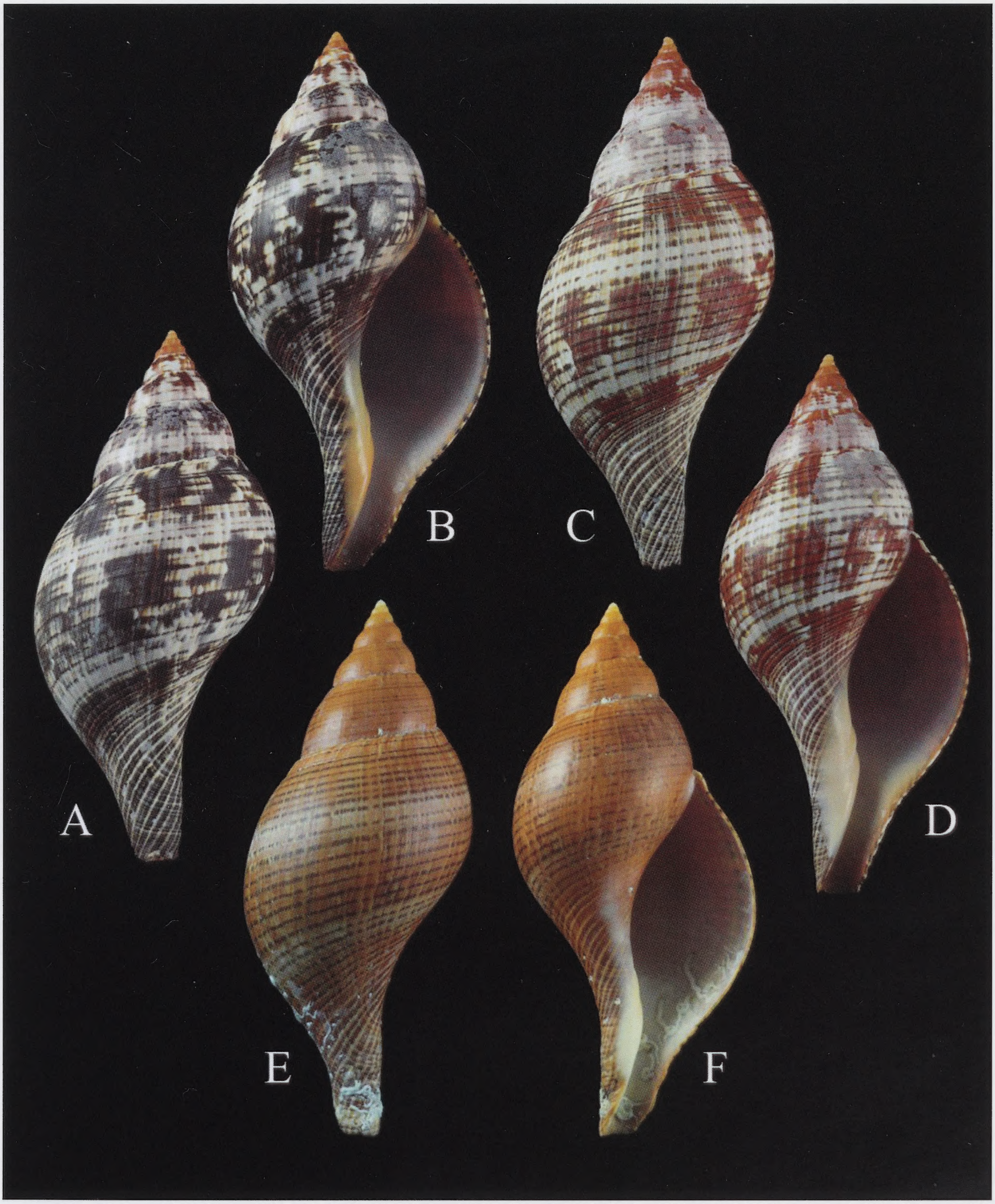

Plate 1. *Fasiolaria bittneri* Petuch and Berschauer, new species, from the Dry Tortugas.
A, B= holotype, length 115.1 mm, LACM 3807; **C, D**= paratype 5, length 115.2 mm, in the Berschauer research collection; **E, F**= paratype 2, length 117.9 mm, in the Petuch research collection. All three specimens were collected from deep water lobster traps set in 18-33 m depths off the Dry Tortugas, western Florida Keys, Monroe County, Florida.

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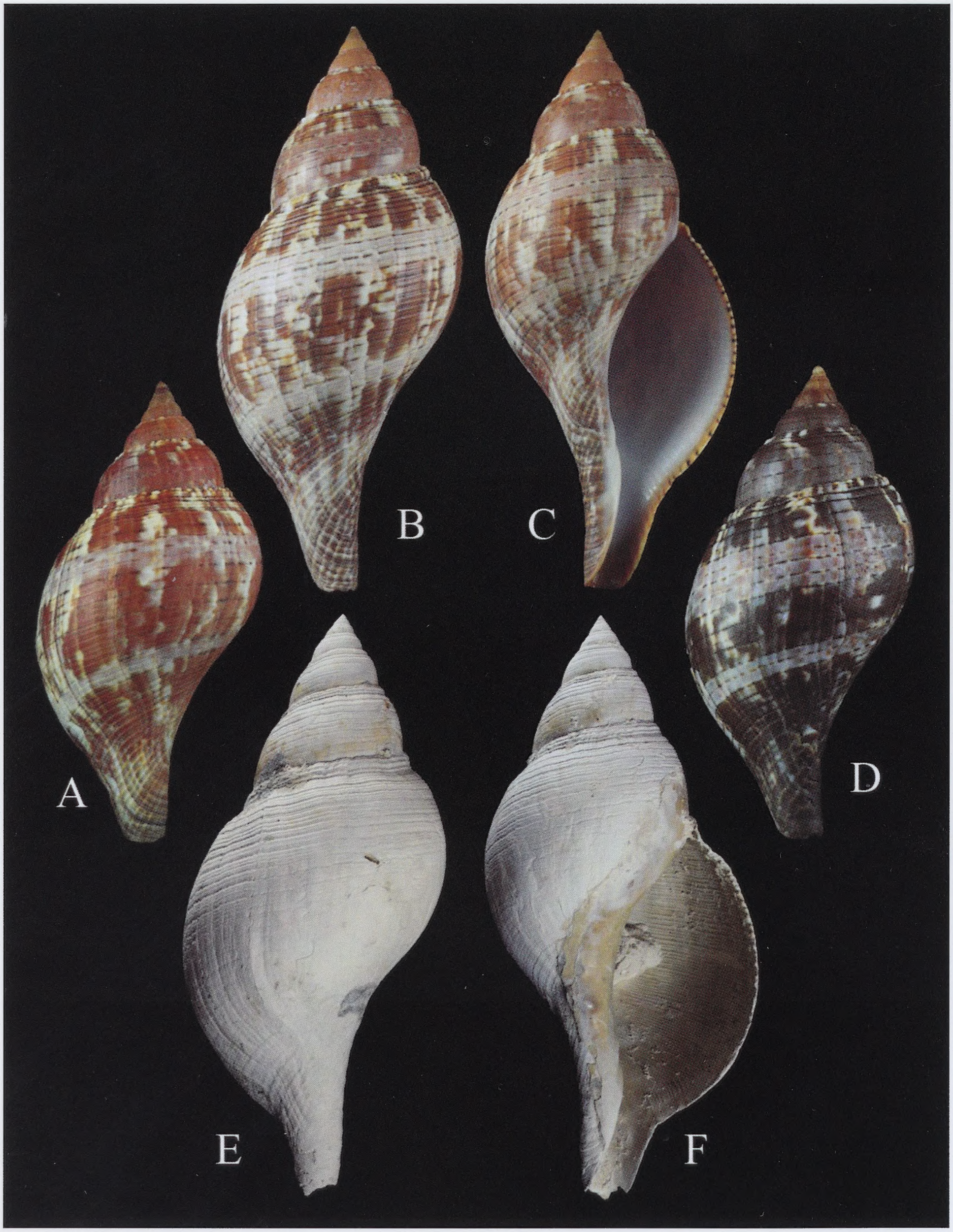

Plate 2. *Fasciolaria tulipa* (Linnaeus, 1758) and *Fasciolaria petuchi* Crabos and Queiroz, 2023, from Florida and Venezuela. **A**= *Fasciolaria tulipa* (Linnaeus, 1758), red color form, length 81.6 mm, from Turtle Key, Ten Thousand Islands, Collier County, Florida; **B, C**= *Fasciolaria tulipa* (Linnaeus, 1758), red color form, length 124.4 mm, from Sanibel Island, Lee County, Florida; **D**= *Fasciolaria tulipa* (Linnaeus, 1758), dark brown and purple color form, length 69.7 mm, from Turtle Key, Ten Thousand Islands, Collier County, Florida; **E, F**= *Fasciolaria okeechobeensis* Tucker and Wilson, 1932, length 240 mm, from the Holey Land Member, Bermont Formation, south Florida, ex Collection of Edward J. Petuch; all illustrated specimens in this plate are in the Berschauer research collection.

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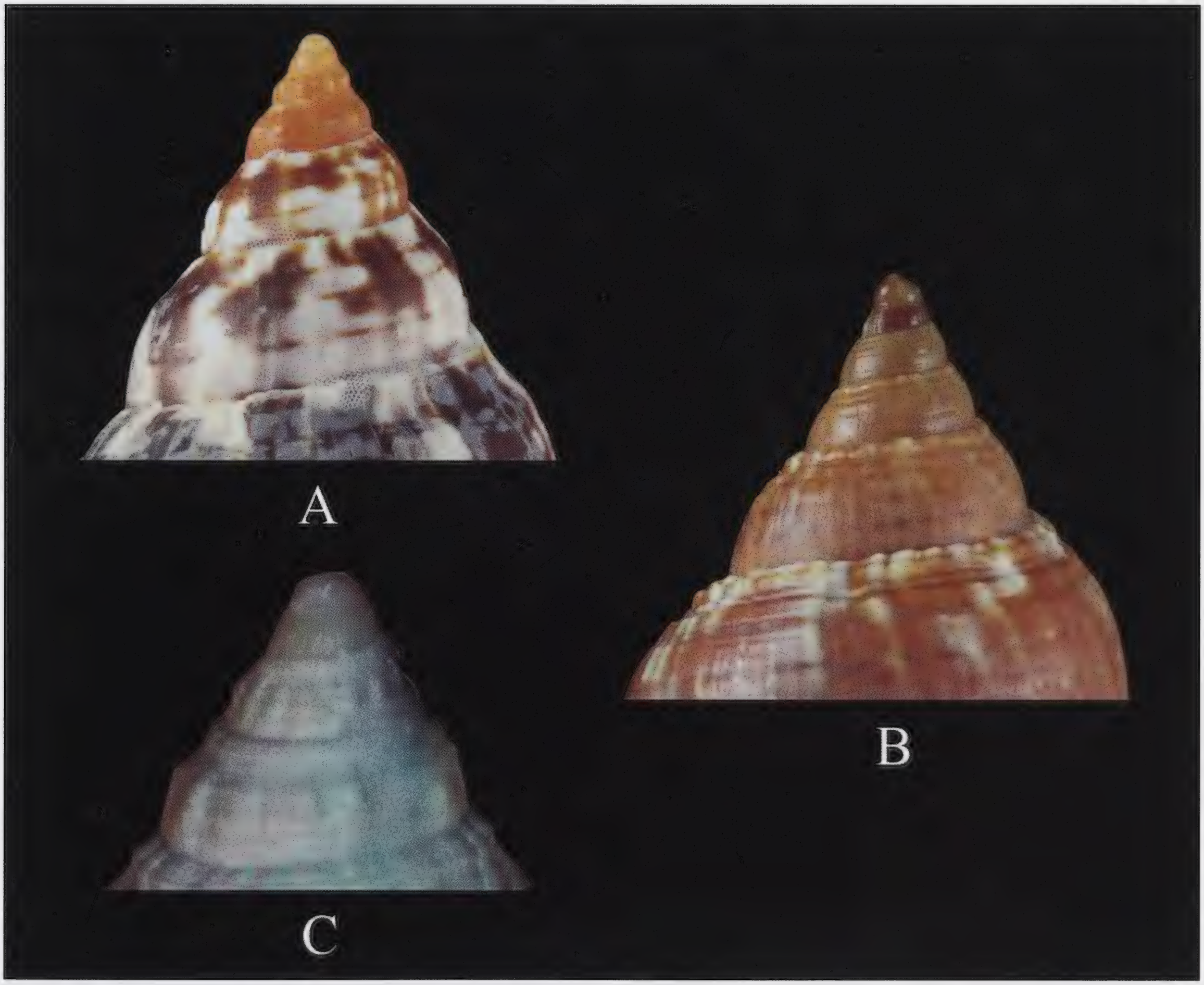

Plate 3. Protoconchs and Early Postnuclear Whorls of *Fasciolaria* Species.
A= early whorls of *Fasciolaria bittneri* new species, showing details of the knobbed shoulders of the postnuclear area; **B**= early whorls of *Fasciolaria tulipa* (Linnaeus, 1758), showing details of the smooth and corded postnuclear area; **C**= early whorls of *Fasciolaria okeechobeensis* Tucker and Wilson, 1932, for comparison with the two extant Florida species.

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Description of *Sciteconus coffeebayensis* n. sp. (Gastropoda: Conidae) from Southeastern Africa

Stephan G. Veldsman
Institute for Marine and Environmental Science, Pretoria, South Africa
conus@enviromarine.co.za

ABSTRACT A new species of *Sciteconus* dredged at a depth of 110m from Coffee Bay in the Eastern Cape of South Africa is described. The shell morphological features of the species within the subgenus *Sciteconus* are similar with only minor differences in the coloration of individual specimens. *Sciteconus coffeebayensis* n. sp. has an off-white background color with orange-brown spiraling lines that are broken. The center band is broad, consisting of large orange-brown markings alternated by off-white coloration. The basal part has a darker brown coloration around the body-whorl. The new species is also compared to two *Sciteconus* species from Port Alfred.

KEYWORDS Conidae, *Sciteconus, Sciteconus coffeebayensis,* Coffee Bay, Eastern Cape, South Africa

INTRODUCTION

The Eastern Cape of South Africa has unique endemic cones classified in the genus *Sciteconus* da Motta, 1991, with some of the oldest descriptions, one of those being *Sciteconus bairstowi* (Sowerby III, 1889). Recent studies on the subgenus *Sciteconus* revealed several new species dredged from Coffee Bay and Port Grosvenor, northern Eastern Cape, South Africa. Korn (2001) first described a small cone from Port Grosvenor (approx. 170km north of Coffee Bay), dredged from 85m: *S. brainhayesi* (Korn, 2001). Veldsman (2016a) described a species from southern KwaZulu-Natal: *S. mpenjatiensis* S.G. Veldsman, 2016, and Veldsman (2016b) added another four species to the subgenus: *S. ariejoostei* S.G. Veldsman, 2016 from Coffee Bay, *S. xhosa* S.G. Veldsman, 2016 from Fish River Mouth, *S. velliesi* S.G. Veldsman, 2016 and *S. nahoonensis* S.G. Veldsman, 2016 from East London, and recognized *S. brainhayesi* specimens from Coffee Bay. Aiken (2021) discovered two more species from Port Alfred area: *S. mosterti* (Aiken, 2021) and *S. markpagei* (Aiken, 2021). Browsing through Coffee Bay cone material, several specimens were found to be different from the nominate *S. brainhayesi* lot and did not concur with any of the other *Sciteconus* species, hence the description here of a new species: *Sciteconus coffeebayensis* n. sp.

Tucker & Tenorio (2009) proposed a systematic classification for the family Conidae, classifying *Sciteconus* da Motta, 1991 to generic level, and reconfirmed in Tucker & Tenorio (2013). Phuillandre *et al.* (2014) performed a molecular phylogenetic analysis on the Conidae where they classified most of the genera proposed by Tucker & Tenorio (2009, 2013) into subgenera under one genus, *Conus*. *Sciteconus* is thus proposed to be a subgenus of the genus *Conus* by Phuillandre *et al.* (2014, 2015). However, Phuillandre *et al.* (2014) only used molecular material from *Sciteconus infrenatus* and *Pictoconus pictus* within their phylogenetic analysis, and not one of the species discussed here or the nominate species of *Sciteconus*. One

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understands Phuillandre *et al.* (2014, 2015) approach by limiting the number of accepted genera, retaining most cone species within the genus *Conus,* and assigning members of these genera to species groups/subgenera to enable effective communication of these groups.

Limpalaër (2018) discusses the classification proposed and used by Monnier *et al.* (2018) within their two-volume edition A Taxonomic Iconography of the Living Conidae, that is a combination of previous classification systems, with 71 genera and 19 subgenera. *Limpalaër* (2018) and Monnier *et al.* (2018) classified the *Sciteconus* species under the genus *Floraconus* Iredale, 1930. *Limpalaër* (2018) mention that *Sciteconus* species appear to belong to the same molecular group as *Floraconus*, but in one study by Phuillandre *et al.* (2014), the phylogenetic analysis shows *Floraconus* and *Sciteconus* on different clades, quite separate from each other with no closely related linkage. According to Tucker & Tenorio (2009, 2013) the two genera have different shell morphological features, and different radula. Furthermore, *Floraconus* is reserved for Australian cone species, whereas *Sciteconus* is reserved for cones endemic to South Africa. The author presented a paper on the *Sciteconus/Floraconus* of South Africa and their distribution with reference to the Coastal Province and Sub-Provinces at the 5th International Cone Meeting, Lisbon, Portugal in 2019. It was argued that the two genera are different from each other, and that the South African species should be classified within their own genus *Sciteconus* and not under *Floraconus*. The reasons for classifying the South African species within *Floraconus* was challenged by the author, but no conclusive explanation was provided for the *Floraconus* classification. It was then proposed by the author, and here again, that *Sciteconus* is reinstated and used at the generic level for the South African species previously classified under it.

METHODOLOGY

The study examines *Sciteconus* specimens from Coffee Bay and compares them to the other closely related species from the genus (Figure 1). Main shell morphological features and color pattern were used during this study to differentiate the new species from its closest congeners within the genus *Sciteconus*. All photographs were taken by S.G. Veldsman, except for the holotypes of *S. mosterti* and *S. markpagei,* which were taken by Mark Page, received with courtesy of Roy Aiken.

SYSTEMATICS

Phylum Mollusca Linnaeus,1758
Class Gastropoda Cuvier, 1795
Subclass Caenogastropoda Cox 1960
Order Neogastropoda Wenz, 1938
Superfamily Conoidea J. Fleming, 1822
Family: Conidae Fleming, 1822
Subfamily: Coninae Fleming, 1822
Genus: *Sciteconus* da Motta, 1991
Type species: *Sciteconus algoensis* (G.B. Sowerby I, 1834).

Sciteconus coffeebayensis S.G. Veldsman, n. sp.
(Plate 1B, Plate 2)

Description. Shell small (between 18-23 mm), moderately light. Profile conical. Shoulder moderately convex, slightly rounded and smooth. Spire low, slightly stepped, with sharp, nipple-like protoconch, moderately deep suture. Very fine ridges close to suture on inner part of the spire whorl, spire off-white with sparse orange-brown markings. The basal last third of body-whorl has very fine ribs around body-whorl. Moderately narrow aperture, with rounded convex lip. No markings or color band on shoulder. Background color of body whorl off-white with orange-brown spiraling lines, the lines are broken by off-white marking thus not

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continuous. The center band is broad, consisting of large orange-brown markings alternated by off-white coloration. The basal part has a darker brown coloration around the body-whorl.

Distribution. *Sciteconus coffeebayensis* so far has only been recorded off Coffee Bay, Eastern Cape, South Africa.

Type material.

Holotype: 20.98 x 11.67 mm (Figure 1B); dredged 110 m off Coffee Bay, Eastern Cape, South Africa; Coll. Natal Museum South Africa (NMSA), ID No. P2315/T4615. Donated by S.G. Veldsman.

Paratype 1: 19.60 x 11.22 mm; Paratype 2: 20.72 x 12.21 mm; Paratype 3: 18.83 x 11.06 mm; Paratype 4: 22.16 x 12.45 mm; Paratype 5: 18.39 x 10.03 mm; Paratype 6: 16.91 x 9.84 mm; Paratype 7: 20.03 x 12.51 mm. (not shown in Figure 2)

All type material dredged at 110 m, off Coffee Bay, Eastern Cape, South Africa.

Etymology. *Sciteconus coffeebayensis* is named for the type locality, Coffee Bay.

DISCUSSION

The shell morphological features of the species within this group of small cones in the *Sciteconus* genus are very similar with only minor differences. Main differences can be observed in the coloration of individual specimens, being consistent within their features. With regards to the closest related species off Coffee Bay, *S. brianhayesi* has prominent orange bands around the body-whorl, broad dark and light-colored background bands with thin dark bands on top, two thin dark orange bands in the middle, consisting of a broken pattern, and a thin dark orange band below the shoulder. *Sciteconus coffeebayensis* has an off-white background color with orange-brown spiraling lines, the lines broken. The center band is broad, consisting of large orange-brown markings alternated by off-white coloration. The basal part has a darker brown coloration around the body-whorl. *Sciteconus ariejoostei* has no markings on the spire such as the previous two species, has light and dark broad orange bands around body-whorl, sometimes with fine darker bands on top, with a thick light-colored band in the middle with no visible markings, and a thin dark orange band below shoulder. The other closely related species in this group are not found at Coffee Bay, each has its own coloration and shell morphological features as discussed by Veldsman (2016) and Aiken (2021). *Sciteconus mpenjatiensis* has similar spotting to *S. coffeebayensis,* apart from that it occurs far north in KwaZulu-Natal, it has a broader profile and on average larger shell. The two species described by Aiken (2021) *S. markpagei* and *S. mosterti* have color patterns similar to *S. coffeebayensis,* apart from that they occur very far south at Port Alfred, both have a slender, longer shell profile in comparison to *S. coffeebayensis.*

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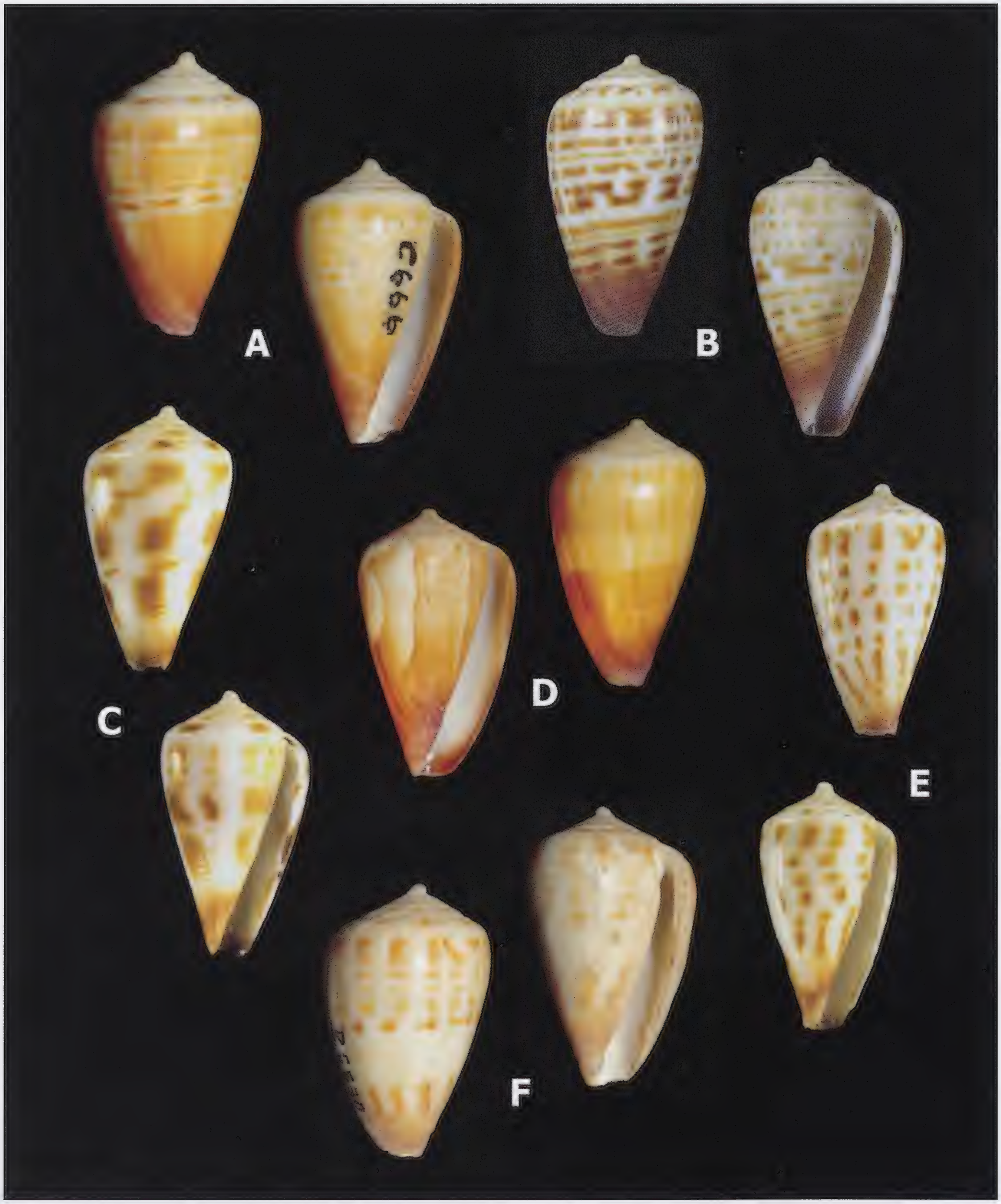

Plate 1. A= *Sciteconus brainhayesi* (Korn, 2001) Holotype: 18.55 x 10.83 mm, Port Grosvenor, dredged 85m, NMSA-C666/T1772. **B**= *Sciteconus coffeebayensis* n. sp. Holotype: 20.98 x 11.67 mm, Coffee Bay, dredged 110m, NMSA-P2315/T4615. **C**= *Sciteconus mosterti* (Aiken, 2021) Holotype: 22.2 x 12.6 mm, Port Alfred, dredged 90-115m, NMSA-P1450/T4410. **D**= *Sciteconus ariejoostei* S.G.Veldsman, 2016 Holotype: 20.82 x 12.33 mm, Coffee Bay, dredged 110m, NMSA-P0672/T4203. **E**= *Sciteconus markpagei* (Aiken, 2021) Holotype: 20.80 x 11.30 mm, between Port Alfred and Kenton-on-Sea, dredged 100m, NMSA-P1451/T4411. **F**= *Sciteconus mpenjatiensis* S.G.Veldsman, 2016 Holotype: 21.15 x 12.99 mm, Trafalgar, dredged 120m, NMSA-B5530/T4173.

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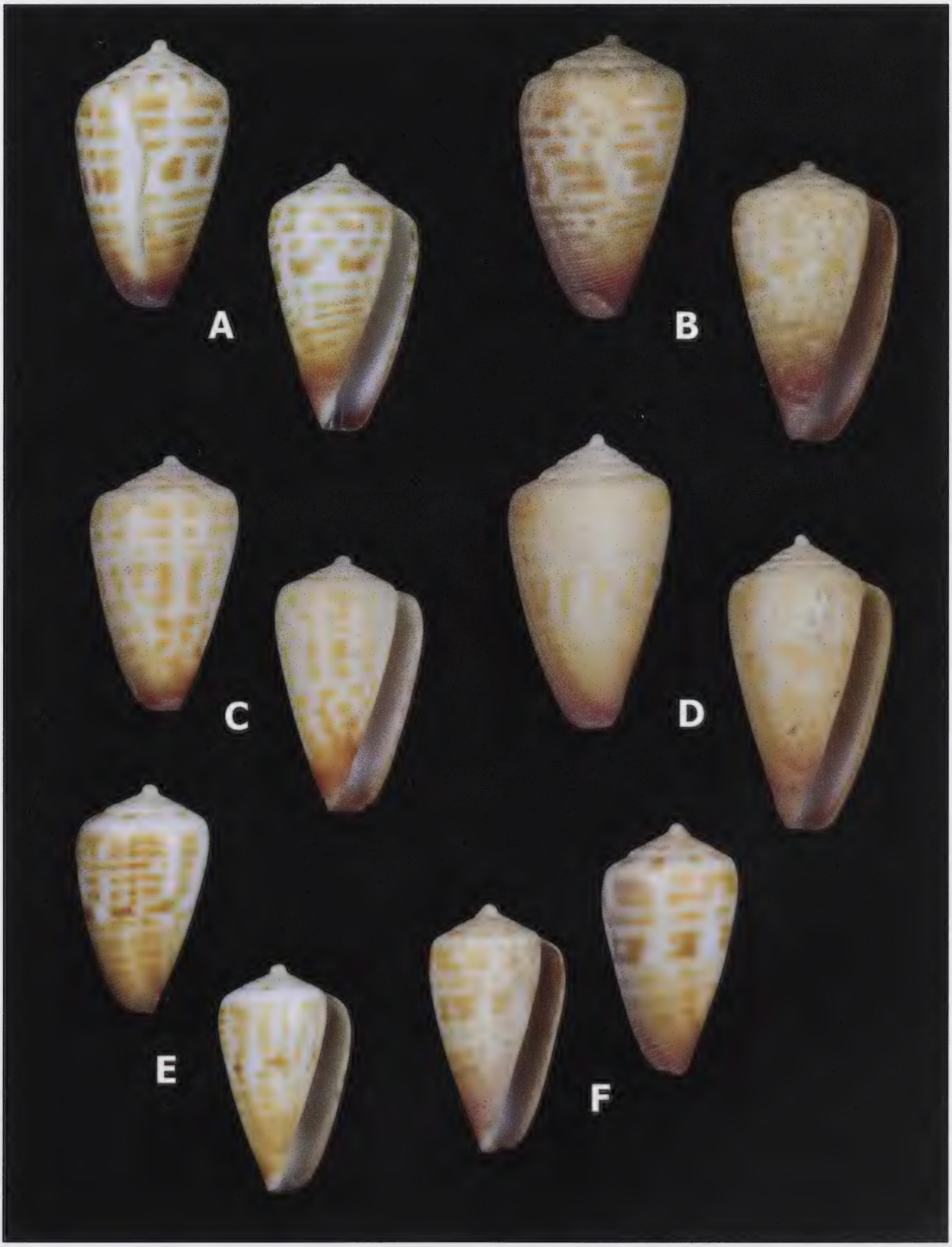

Plate 2. *Sciteconus coffeebayensis* n. sp. Coffee Bay, dredged 110m. **A**= Paratype 1: 19.60 x 11.22 mm; **B**= Paratype 2: 20.72 x 12.21 mm; **C**= Paratype 3: 18.83 x 11.06 mm; **D**= Paratype 4: 22.16 x 12.45 mm; **E**= Paratype 6: 16.91 x 9.84 mm; **F**= Paratype 5: 18.39 x 10.03 mm.

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A New Species of *Murex* (Gastropoda: Muricidae) from the Andaman Sea, Thailand

Chorchat Gra-tes
83 Ramintra 5 Yak18, Ramintra Road, Taraeng,
Bangkhen, Bangkok, 10220 Thailand
chorchatshells@yahoo.com

ABSTRACT A new species of the genus *Murex* (Family Muricidae) is described from an island in the Andaman Islands chain off Pang-nga Province, southwest Thailand in the Andamanian Subprovince. This geographical subprovince is located in the eastern Andaman Sea, East Indian Ocean. *Murex suttipraneeae* sp. nov. is conchologically differentiated from a closely related species; *Murex pecten* Lightfoot, 1786 and its complex from other geographical provinces around the western Pacific rim.

KEY WORDS Gastropoda, Muricidae, *Murex suttipraneeae*, Andamanian Subprovince, Andaman Sea, Thailand

INTRODUCTION

The species of the Genus *Murex* Linnaeus, 1758 are very attractive having an amazing and fascinating club shape with long shoulder spines and cords, and spines on the siphonal canal formed like a comb. Species in this Genus are distributed from the tropical western Pacific to the Central Indian Ocean. This new species was found only in an area around Ba-ngu Island off Phang-nga Province, on the southwest coast of Thailand, which lies in the Andaman Islands chain in the Andamanian Subprovince; "a semi enclosed basin that is centered on the Andaman Sea and enclosed by the west coasts of Myanmar and Thailand and the Mergui Archipelago in the east, to the northern Malacca Strait in the south, and to the Andaman and Nicobar Islands in the west" (Dekkers *et al.* 2022). The southeast Asian peninsula (*i.e.,* Thailand and Malaysia) separates the sea into two oceans (*i.e.,* the Indian Ocean on the west; and the Pacific Ocean on the east). This separation, that occurred millions of years ago, created subprovinces with their own distinct environmental conditions (*i.e.,* unique water temperatures and salinity, current flows and ocean floor contours). Over time, the species in these provinces adapted to their specific environmental conditions (Petuch & Berschauer 2020) and established different physiological characteristics that are used here to distinguish M. *suttipraneeae* n. sp. from *M. pecten* Lightfoot, 1786.

Abbreviations:

CGSC = Chorchat Gra-tes Private Shell Collection
CUMZ = Chulalongkorn University, Museum of Zoology. Bangkok, Thailand.
L = Shell Length (Protoconch to Siphonal canal tip)
S = Spine Number
SC = Shoulder Spine
W = Shell Width
WRTN = Woman in the Royal Thai Navy

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MATERIAL AND METHODS

The specimens of *M. suttipraneeae* sp. nov. were collected from Ba-ngu Island, Phang-nga Province in the Andaman Sea, southwest of Thailand. The description of shell characters and morphological analyses were obtained from dry empty shells. Other material examined consisted of specimens of *M. pecten* Lightfoot, 1786 and other *Murex* sp. from the CGSC. Photographs of *M. pecten* in the references were also used for comparison.

SYSTEMATICS

Phylum: Mollusca Linnaeus, 1758
Class: Gastropoda Cuvier, 1795
Subclass: Caenogastropoda Cox, 1960
Order: Neogastropoda Wenz, 1938
Family: Muricidae Rafinesque, 1815
Subfamily: Muricinae Rafinesque, 1815
Genus: *Murex* Linnaeus, 1758

Murex suttipraneeae Gra-tes, new species
(Plate 1)

Description. *Murex suttipraneeae* is dextral, club shaped, fusiform and large for the Genus. It has both short and long spines with cords that are prominent and a moderately tall to tall spire. The siphonal canal is long bearing spines that are moderate to long in length and comb-like. There is a prominent labial tooth. The protoconch is small pointed and creamy yellow, slightly translucent with less pronounced axial ribs (ridges) (Figure 1). The body whorl is moderately large and elongate. The aperture is ovate to lenticular. The siphonal canal is long straight with a narrow opening. The shoulder spine (or primary cord) is medium to long in length and pointed upward. The primary spines are shorter in length with a small deviation angle from axis (Figure 2) and shorter major cords in the siphonal canal, the body with 16-17 major cords (spines) on the siphonal canal (Figure 3). The tips of the spines along the siphonal canal form an ovate shape (not circular, Figure 7). The deviation angle between the shoulder spine and the axis is narrow (Figure 2). The color of the shell's body and the base of the spines is tan to dark tan with lavender or deep, mauve-colored spines. The spiral rib is weakly nodulose and the color is creamy-tan, lighter than the base color of the shell. The aperture is light brown and white at the margin. The operculum is ovate to elongate with pointed tips oriented toward the anterior and the posterior ends. The color of the operculum is dark tan to brown. On the outer surface are a number of concentric lamella radiating outward from the nucleus (Figure 5). The largest specimen collected of *M. suttipraneeae* is 178 mm and is in the author's collection.

Type Material. The Holotype is deposited in the Chulalongkorn University, Museum of Zoology, Bangkok, Thailand. Holotype: CUMZ 7456, 128 mm. (ex. CGSC 6297-4018). Paratype: 21 specimens CGSC 6297-4019 to CGSC 6297-4039 are in the author's collection (8 Paratype specimens are shown here, Plate 1).

Type Locality. Ba-ngu Island, Phang-nga, Thailand, in the Andaman Sea. Specimens were caught in crab nets by local fishermen at a depth of about 60-70 meters on muddy substrate.

Distribution. This new species was found around Ba-ngu Islands (a small island in a group of islands on the Andaman Islands chain) off Phang-nga Province, southwest of Thailand.

Comparison. The spire is taller compared to other species in the Genus, (*i.e., M. altispira* Ponder & Vokes, 1988 (Figure 9) and *M. djarianensis poppei* Houart, 1979 that have shorter spires). However, *M. suttipraneeae* (Plate 1) is closest in form to *M. pecten* (Plate 2). Both *M. pecten* and *M. suttipraneeae* are club

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shaped, dextral, and large for the Genus. The coloration of *M. pecten* is creamy white to light tan while *M. suttipraneeae* is light tan to tan. The average number of spines for *M. pecten* is about 10-12 (Figure 4) while *M. suttipraneeae* has about 15-17 but typically have 16 (Figure 3). The shape of the spine set on the siphonal canal of *M. pecten* is round while *M. suttipraneeae* is ovate (Table 1, Figures 3 and 4). Length of the siphonal canal and shoulder spines of *M. pecten* are longer and more concave than *M. suttipraneeae.* The average deviation of shoulder spine to axis of *M. pecten* is greater than *M. suttipraneeae* (Figure 2).

Ponder and Vokes (1988) emphasized the importance of the operculum for identification: "The position of nucleus and the type of sculpture on the outer surface of the operculum are the main character used. This structure is valuable in separating some species of *Murex*." So, by comparison, the tips of the operculum are more pointed toward the anterior and posterior ends in *M. suttipraneeae* and there are more concentric lamellas radiating out from the nucleus than in *M. pecten*. The color of the operculum is dark brown to tan in *M. suttipraneeae* and tan to dark tan in *M. pecten* (Figure 6). The average ratio between the width and length (W/L) of the 9 specimens of *M. pecten* in Plate 2 is 0.515 while this ratio is 0.432 in *M. suttipraneeae* (Table 1), making *M. pecten* broader on average than *M. suttipraneeae* (Figure 9).

Murexes that look similar but different are *M. djarianensis poppei* and *M. altispira*. However, the spire of *M. suttipraneeae* is taller (Figures 10 and 11). *M. djarianensis poppei* only lives along the western coast of Southeast Asian Peninsula, in the east Andaman Sea. While *M. altispira* only lives along the eastern coast of Southeast Asian Peninsula or west of the Gulf of Thailand. Both come from areas that have different oceanographic characteristics that contribute to their form variations. The same applies to *M. suttipraneeae* from the south Andaman Sea, Indian Ocean and *M. pecten* from the Philippines (Western Pacific rim). Both have evolved differently under the environmental conditions in their respective subprovinces and do not typically cross over into other regions, provinces or subprovinces.

Etymology. This species is named in honor of my mother, Captain Suttipranee Gra-tes WRTN.

Specimen Number *Murex pecten* Lightfoot, 1786	**L (mm)**	**W (mm)**	**W/L**
1	170	82	0.482
2	170	83	0.488
3	142	72	0.507
4	135	74	0.548
5	132	70	0.530
6	126	59	0.468
7	120	67	0.558
8	102	55	0.539
9	98	51	0.520
Average W/L			**0.515**
Paratype Number *Murex suttipraneeae* sp. nov.			
Holotype	119	50	0.420
1	173	78	0.450
2	161	69	0.428
3	154	71	0.461
4	148	60	0.405
5	140	58	0.414
6	122	55	0.450
7	154	66	0.428
8	163	71	0.435
Average W/L			**0.432**

Table 1. Average W/L of *M. pecten* Lightfoot, 1786 and *M. suttipraneeae* sp. nov. A W/L greater than 0.5 means the shell is broader. A W/L less than 0.5 means the shell is slender.

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Shell characteristics	*Murex pecten* Lightfoot, 1786	*Murex suttipraneeae* sp. nov.
Color (Figure 7)	Creamy white to light tan	Light tan to tan
Number of cords (spines) on the siphonal canal (Figures 3 & 4)	10-12	15-17
Shape of the arrangement of spines on the siphonal canal (Figure 7)	round	ovate
Length of spines	longer	shorter
Apex (Figure 1)	small pointed and creamy yellow, slightly translucent with less pronounced axial ribs (ridges)	blunt and creamy white with pronounced axial ribs (ridges)
Average deviation of shoulder spine to Axis (Figure 2)	greater	smaller
Shoulder spines (Figures 3 & 4)	longer,more concave up	shorter,less concave up
Operculum (Figure 6)	The tips of operculum toward the anterior and posterior are more rounded, and there are less concentric lamella radiating out from the nucleus on the outer surface. The color is tan to dark tan.	The tips of operculum toward the anterior and posterior are more pointed, and there are a greater number of concentric lamella radiating out from the nucleus on the outer surface. The color is dark tan to brown.
Aperture (Figure 6)	Edge of aperture white, light to dark brown within.	Edge of aperture light brown and white at the margin.

Table 2. Comparing characters of *M. pecten* Lightfoot, 1786 and *M. suttipraneeae* sp. nov.

DISCUSSION

At present, this new species is endemic to Ba-ngu Island off Phang-nga Province southwest coast of Thailand that lies in the Andaman Islands chain on the Andamanian Subprovince. However, range extension beyond Ba-ngu Island requires further research.

The Indian Ocean and the Pacific Ocean have been separated by the Southeast Asian Peninsula for millions of years. This separation obstructed current flows and affected atmospheric weather conditions that shaped the characteristics of the oceans including water salinity and temperature in these subprovinces. The salinity of sea water at the surface in the Indian Ocean ranges from 32 to 37 parts per 1000. The highest is 37 in Arabian Sea and the lowest is in Bay of Bengal.[1] While the Pacific waters that approach 60° F have salinities of less than 34 parts per 1000, the lowest salinities of less than 32 parts per 1000 occur in the extreme northern region of the Pacific. The heavy rainfall in the western Pacific, associated with the monsoons of the region, gives rise to relatively low salinities.[2] These differences of salinity and ocean temperature created an environment that existed for millions of years allowing marine creatures (*e.g.,* Mollusca) to evolve and adapt to these conditions establishing new species and variations of existing species that we see today.

Some examples of very close and related species and subspecies but from different ecological environmental conditions include *Lambis scorpius* Linnaeus, 1758 from the Philippines vs. *Lambis indomaris* Abbott, 1961 from the Indian Ocean (Figure 10), *Cymatium lotorium* Linnaeus, 1758 from the Philippines vs. *Cymatium perryi* Emerson & Old, 1963 from the Indian Ocean (Figure 11), *Cypraea (Perisserosa) guttata* Gmelin, 1791 from the

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Philippines vs. *Cypraea (Perisserosa) surinensis* (Raybaudi, 1978) from the Indian Ocean (Figure 12) etc. These species look similar, but their shell characteristics have evolved differently when adapting to their specific environmental conditions.

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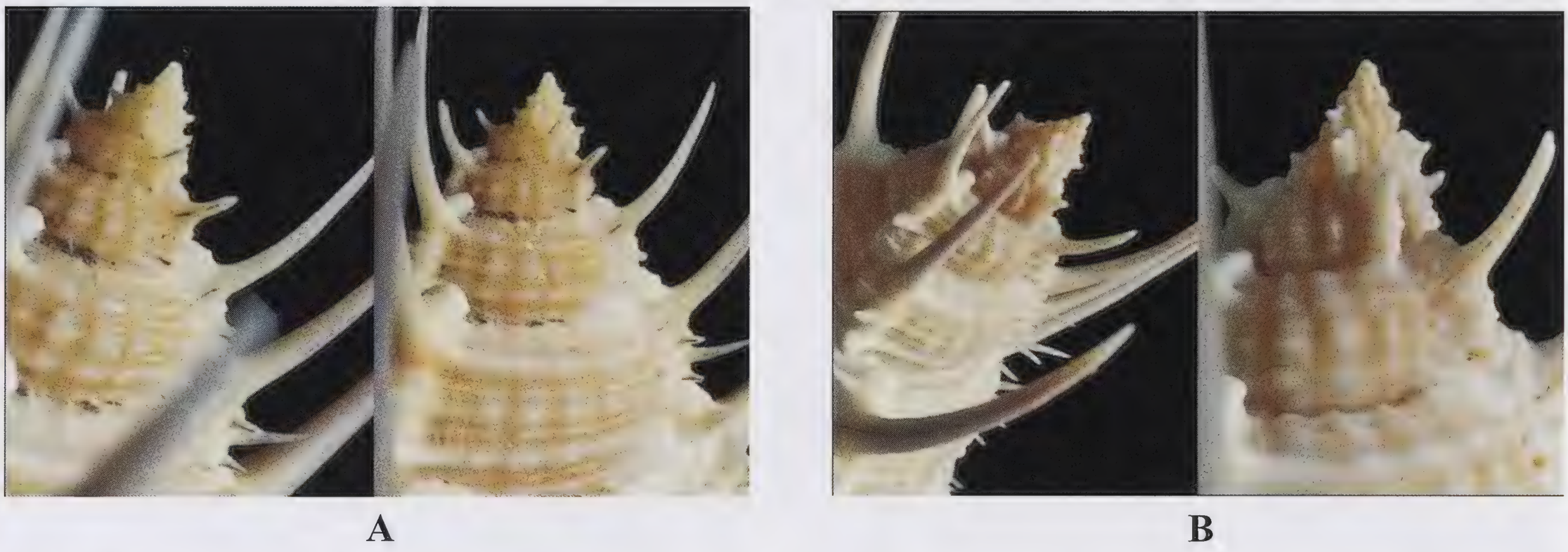

A B

Figure 1. Protoconch Comparison. A= The protoconch of *M. suttipraneeae* sp. nov. is small pointed and creamy yellow, slightly translucent with less pronounced axial ribs (ridges), **B=** the protoconch of *M. pecten* Lightfoot, 1786 is blunt and creamy white with pronounced axial ribs (ridges). Specimens are from the CGSC.

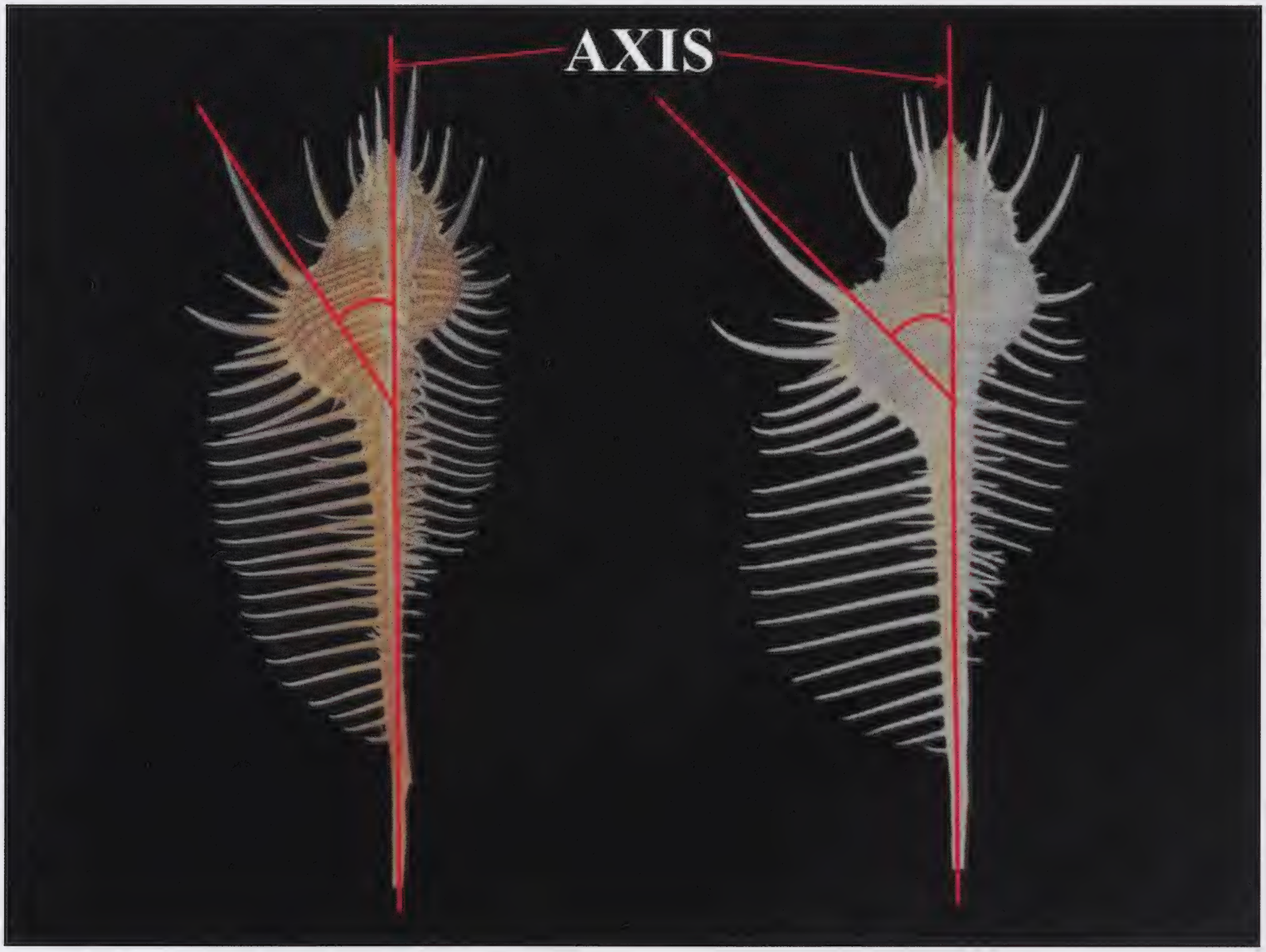

Figure 2. Deviation angle between shoulder spines and axis of *M. suttipraneeae* sp. nov. (left) is less than *M. pecten* Lightfoot, 1786 (right). Shoulder spines of *M. suttipraneeae* sp. nov. are shorter and less concave than *M. pecten* Lightfoot, 1786. Specimens are from CGSC.

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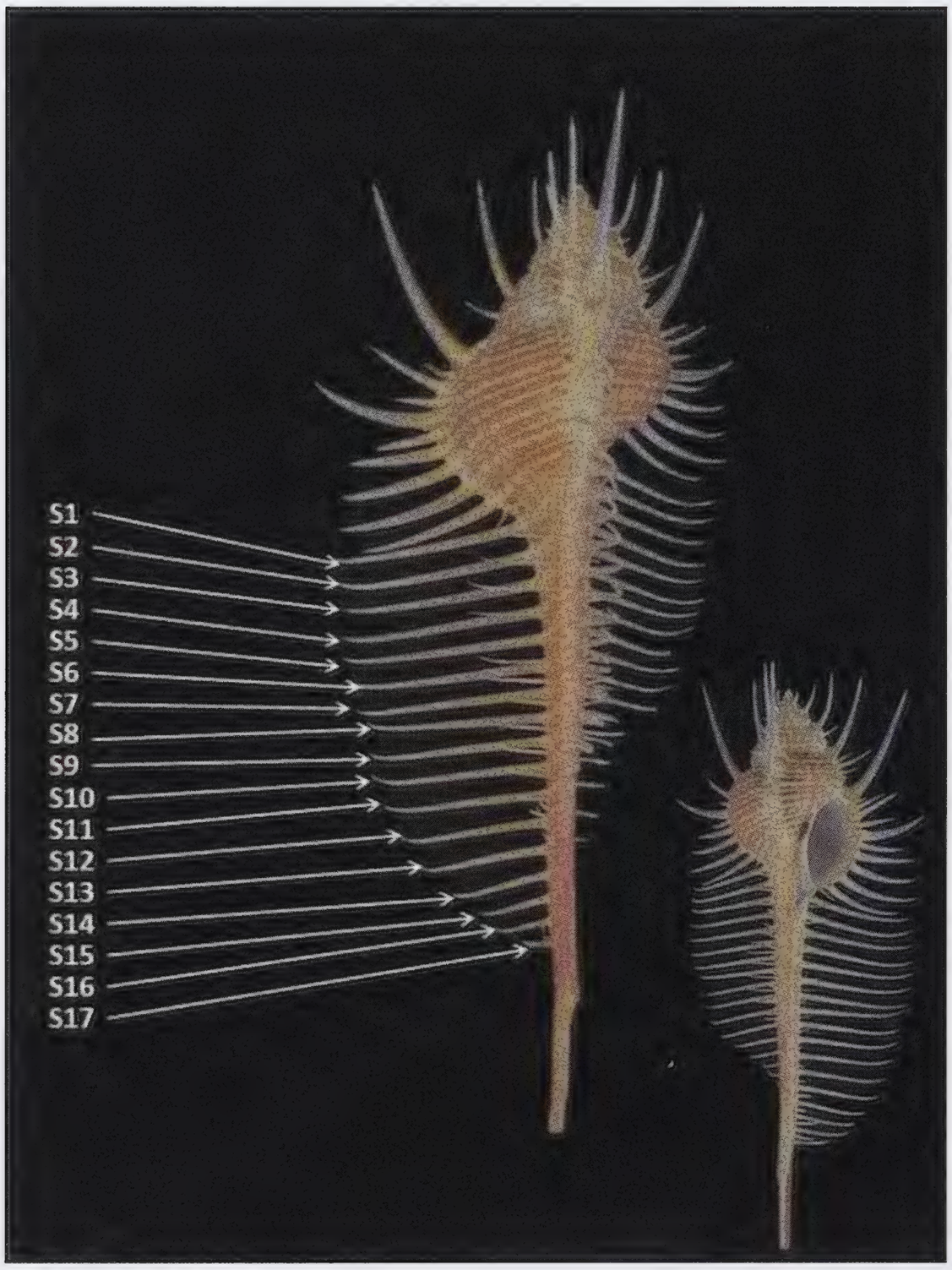

Figure 3. *Murex suttipraneeae* sp. nov. has 16 spines with average W/L at 0.425 slender than *M. pecten* Lightfoot, 1786. The set of spines (left) form an ovate shape. Specimen is from the CGSC.

Figure 4. *Murex pecten* Lightfoot, 1786 has 11 spines with average W/L at 0.515 broader than *Murex suttipraneeae* sp. nov. The set of spines (left) form a round shape. Specimen is from the CGSC.

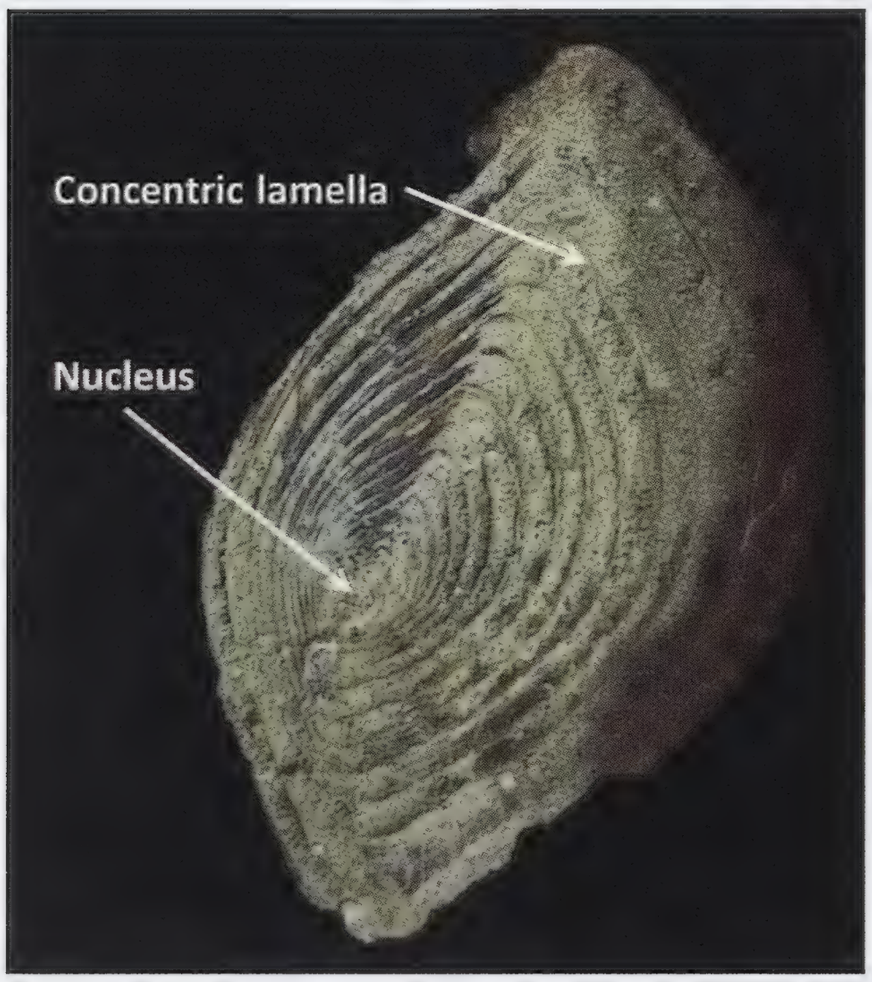

Figure 5. Nucleus and concentric lamella of *M. suttipraneeae* sp. nov.

NOVAPEX

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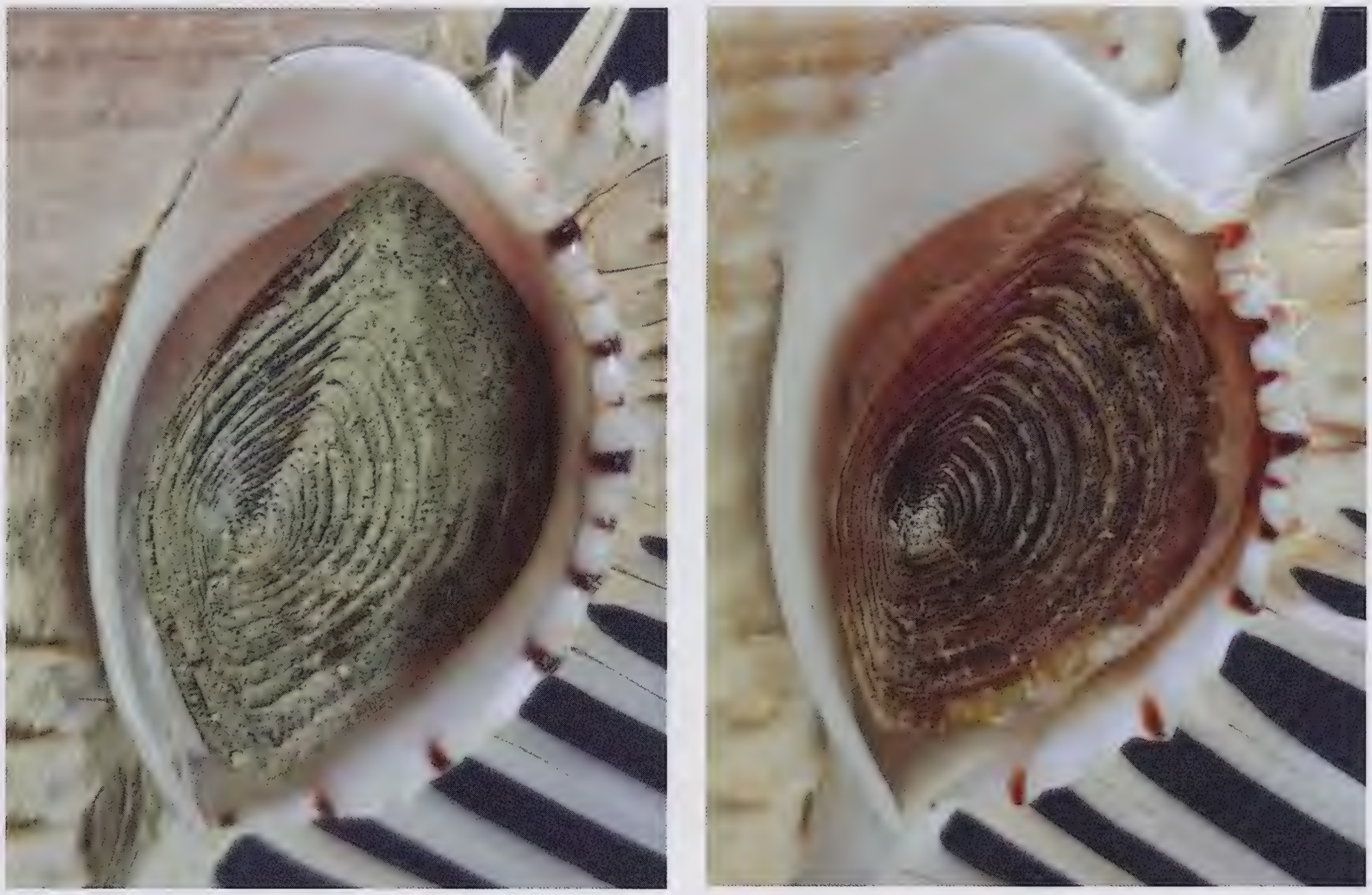

Figure 6. The operculum of *M. suttipraneeae* sp. nov. (left) and *M. pecten* Lightfoot, 1786 (right). On the outer surface, the concentric lamella from the nucleus outward of *M. suttipraneeae* sp. nov. is frequent and the tips of operculum toward the anterior and posterior is more pointed than *M. pecten* Lightfoot, 1786.

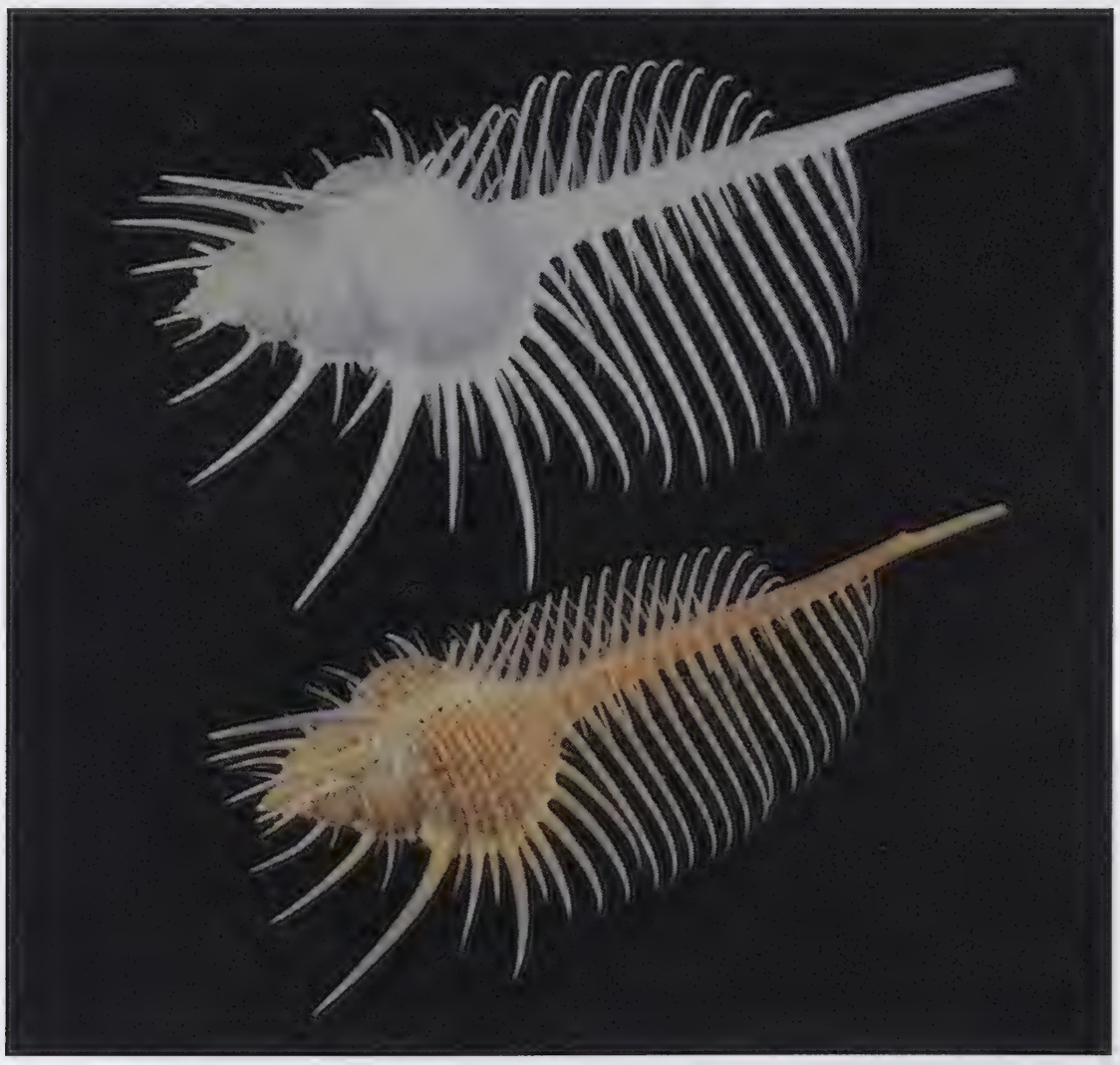

Figure 7. Top is *M. pecten* Lightfoot, 1786, and bottom is *M. suttipraneeae* sp. nov. Note the number of spines on the siphonal canal. Specimens are from the CGSC.

Figure 8. Dorsal and ventral view of *M. suttipraneeae* sp. nov. Specimen is from the CGSC.

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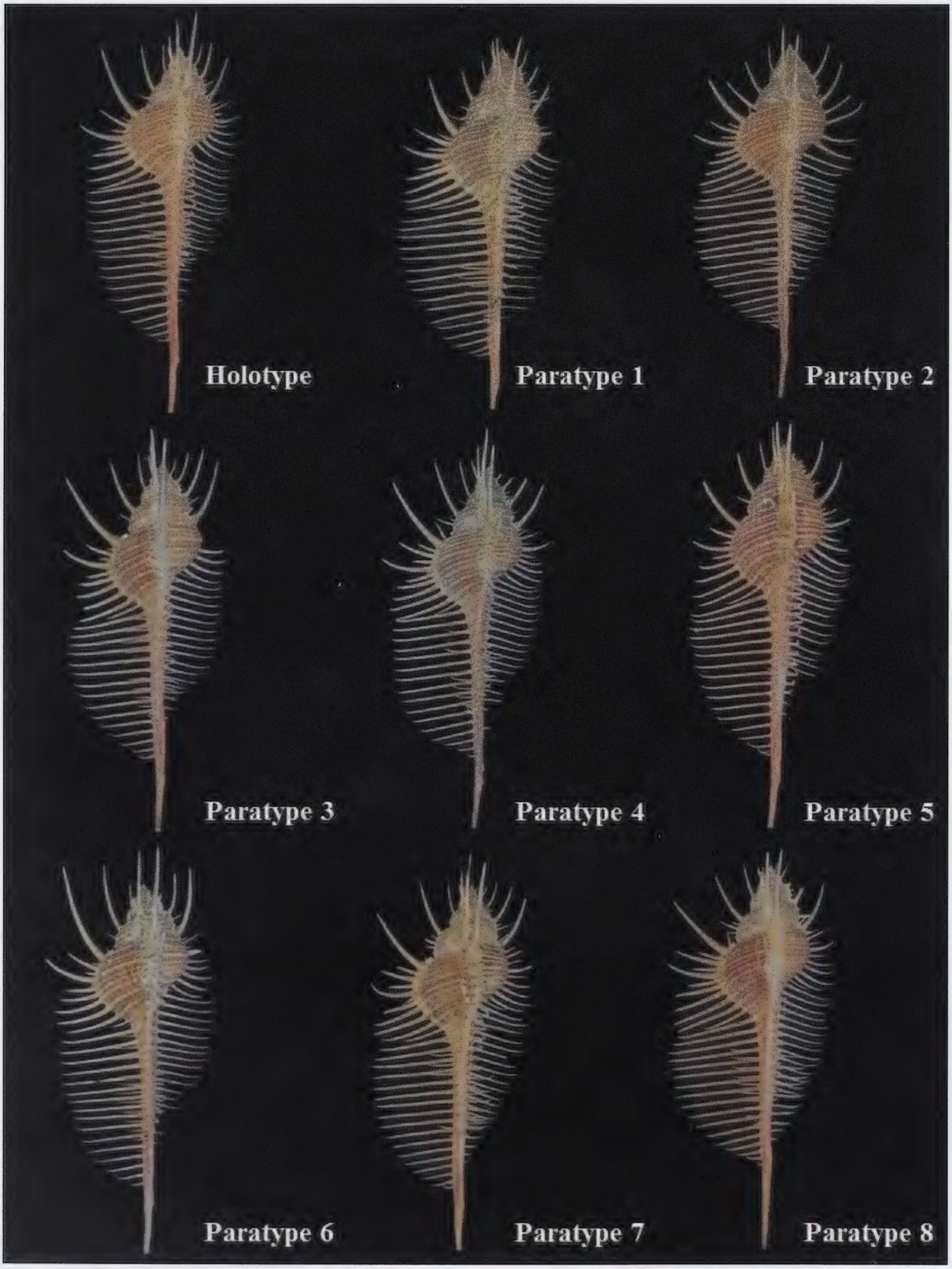

Plate 1. Nine specimens of *M. suttipraneeae* sp. nov. Holotype is in the CUMZ, Paratypes 1-8 are in the CGSC. The size of Holotype to Paratype 8 are 119 mm, 173 mm, 161 mm, 154 mm, 148 mm, 140 mm, 122 mm, 154 mm, and 163 mm respectively.

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Plate 2. Nine specimens of *M. pecten* Lightfoot, 1786, size from 1 to 9 are 170 mm, 170 mm, 142 mm, 135 mm, 132 mm, 126 mm, 120 mm, 102 mm, and 98 mm respectively. Specimens are from the CGSC.

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Figure 9. *Murex altispira* Ponder & Vokes, 1988 (130 mm) from the west Gulf of Thailand (Pacific Ocean Side) (left) vs. *M. djarianensis poppei* Houart, 1979 (125 mm) from the Andaman Sea, south Thailand (Indian Ocean Side) (right). Specimens are from the CGSC.

Figure 10. *Lambis scorpius* Linnaeus, 1758 (150 mm) from the Philippines (left) vs. *L. indomaris* Abbott, 1961 (170 mm) from the Indian Ocean (right) Specimens are from the CGSC.

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Figure 11. *Cymatium lotorium* Linnaeus, 1758 (136 mm) from the Philippines (left) vs. *Cymatium perryi* Emerson & Old, 1963 (122 mm) from the Indian Ocean (right) Specimens are from the CGSC.

Figure 12. *Cypraea (Perisserosa) guttata* Gmelin, 1791 (58 mm) from the Philippines (left) vs. *Cypraea (Perisserosa) surinensis* (L. Raybaudi, 1978) (50 mm) from the Indian Ocean (right). Specimens are from the CGSC.

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Two New Cone Species from Espirito Santo State, Brazil

Olivier Crabos [1], Geraldo Semer Pomponet Oliveira [2],
Gregorio Pereira de Queiroz [3], and Laudelino Passos de Almeida [4]

[1] Rua Juiz Orlando Heleno de Mello 119, Casa 1, Condominio Mirante de Piata, 41650-465, Salvador, Bahia State, Brazil oli70711@gmail.com
[2] Rua Arquimedes Goncalves 62/501, Jardim Baiano, 40050-300, Salvador, Bahia State, Brazil gshells@hotmail.com
[3] Alameda Casabranca 1204, apt 04, 01408-000, Sao Paulo, Sao Paulo State, Brazil gregoriopereiradequeiroz@gmail.com
[4] Rua Rio Trobogy 806, Loteamento Veredas Piata , C19, Piata, 41650-295, Salvador, Bahia State, Brazil

ABSTRACT Two new species of cone shells, *Dauciconus rosapex* n. sp. and *Poremskiconus poremskigrandis* n.sp., are described from the southern coast of Espirito Santo State, Brazil. This area, encompassing the southernmost section of the Bahian Subprovince, Brazilian Molluscan Province, has recently been found to contain a large number of endemic cones shells and represents a possible new infraprovince within the Bahian Subprovince.

KEY WORDS Conidae, *Dauciconus*, *Poremskiconus*, Brazil, Espirito Santo State, Brazilian Molluscan Province, Bahian Subprovince, *Dauciconus rosapex*, *Poremskiconis poremskigrandis*

INTRODUCTION

Our recent field collecting along the coastline of Espirito Santo State, in south central Brazil, has resulted in the discovery of numerous new marine mollusks, most notably several new species in the Family Conidae (Crabos, Pomponet, Queiroz, and Passos, 2023). Some of these newly-discovered Espirito Santo taxa included remarkable species such as *Dauciconus luizcoutoi* and *Poremskiconus guarapari*, indicating that the southern part of the State represents a localized "Hot Spot" of evolution (referred to as an "Infraprovince" by Petuch and Berschauer, 2020: 10-12, 43-47). Continued exploration by ourselves and fellow citizen scientists, such as Alfredo Bodart and Luiz Couto, have yielded several more unnamed cone shells, demonstrating that the malacofauna of the southern Brazilian Province is much richer and more diverse than previously thought.

The offshore areas of southern Espirito Santo are still biologically-unexplored and the little data that is available was obtained mostly from collections taken from baited octopus pots (traps) placed in depths of 40-70 m (Crabos, Pomponet, Queiroz, and Passos, 2023). Recently, two more previously-unnamed species of deeper water (mid-Neritic Zone) cone shells have been collected in octopus pots and these are described in the following sections. The holotypes of these new taxa are deposited in the type collection of the Malacology Section of the National Museum (Museu Nacional do Rio de Janeiro), Rio de Janeiro, Brazil and bear NMRJ catalog numbers.

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SYSTEMATICS
Class Gastropoda
Subclass Sorbeoconcha
Order Prosobranchia
Infraorder Neogastropoda
Superfamily Conoidea
Family Conidae
Subfamily Coninae (=Puncticulinae)
Genus *Dauciconus* Cotton, 1945

Dauciconus rosapex Crabos, Pomponet, Queiroz, and Passos, new species
(Plate 1, Figures A-I)

Description. Shell of average to large size for genus, compact, with straight sides and low, concave spire; shoulder angled with slightly rounded, subcarinate edge; spire whorls slightly canaliculated; body whorl smooth and polished; shell base color orange-brown with wide pink band on anterior third and mid-body, sometimes with smaller darker subsidiary band; spire with whitish pink base color, marked with 12 to 15 evenly-spaced crescent-shaped brown flammules; protoconch pink; and aperture uniformly narrow, colored deep pink inside.
Type Material. HOLOTYPE - length 63.1 mm, width 33.5 mm, from off Marataizes, Espirito Santo State, Brazil, MNRJ 24489: PARATYPES - 3 specimens, length 59.7 mm, 49.4 mm and 39.3 mm, in the Olivier Crabos collection.
Type Locality. Collected by octopus fishermen, from 60 to 70 m depth off Marataizes, 30 kms South of Guarapari, Espirito Santo State, Brazil, on fine calcareous sediments.
Range. The new species is known only from the type locality off Marataizes, Espirito Santo State, Brazil.
Etymology. Named in reference to the bright pink protoconch and early whorls of the new species, which distinguishes it from other sympatric *Dauciconus* species.

Discussion. In addition to *Dauciconus rosapex,* three similar, large *Dauciconus* occur in the southern Espirito Santo region; *Dauciconus worki* Petuch 1998 and *Dauciconus riosi* Petuch 1986 (illustrated in Petuch and Berschauer, 2020: figures 2.37K and 2.40H), and *Dauciconus luizcoutoi* Crabos, Pomponet, Queiroz and Passos, 2022. *Dauciconus rosapex* is easily distinguishable from *D. worki* and *D. riosi* by its prominent bright pink protoconch and early whorls; the previously-described *D. worki* has a yellow protoconch and early whorls while *D. riosi* has a pale orange or orange-pink protoconch. In addition to the differences in general shell outline, the spire of the new species is more similar to *D. worki* than to *D. riosi*, as it is concave and not flat like the spire of *D. riosi*. In spire and protoconch color, *Dauciconus rosapex* is most similar to *D. luizcoutoi* and shares the same type of pink protoconch and aperture. The new species differs from its recently-described sympatric congener in having a body whorl color pattern that is dominated by wide, discrete orange and brown bands and not elongated, longitudinal white and brown flammules arranged in a zebra pattern as seen on *D. luizcoutoi*. The shell outline of the new species is also stockier and more robust than that of the much more slender *D. luizcoutoi*. For comparison images to related *Dauciconus* species see Plate 3.

Genus *Poremskiconus* Petuch, 2013

Poremskiconus poremskigrandis Crabos, Pomponet, Queiroz, and Passos, new species
(Plate 2, Figures A-F)

Description. Shell of large size for genus, conic, with a narrowing at anterior end; spire moderately elevated, high spire for genus; shoulder sharply-angled, subcarinate, edge decorated with prominent brown hairline flammules; spire whorls slightly canaliculated;

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body whorl smooth; shell base color whitish-pink, overlaid with wide areas of solid color, usually pale yellow-orange or darker crimson-orange, with most common base color being deep salmon-orange; prominent wide, white mid-body band present, marked with scattered brown flammules and overlaid with 2-4 rows of tiny brown spots; row of smaller brown flammules present along anterior end; spire colored with approximately 30 brown, evenly-spaced crescent-shaped brown flammules; protoconch pink; aperture narrow, widening slightly toward anterior end; and interior of aperture colored pale whitish-pink.

Type Material. HOLOTYPE - length 36.5 mm, width 18.6 mm, from off Guarapari, Espirito Santo State, Brazil, MNRJ 24490: PARATYPES - 1 specimen length 33.6 mm in the Olivier Crabos collection and 2 specimens length 33.5 and 25.5 mm in the Gregorio Queiroz collection.

Type Locality. Collected by octopus fishermen, from 60 to 70 m depth, off Guarapari, Espirito Santo State, Brazil, on fine calcareous bottom.

Range. The new species is known only from the type locality off Guarapari, Espirito Santo State, Brazil.

Etymology. Named in reference to the unusually large size of the new species within the genus *Poremskiconus*, which generally contains much smaller species.

Discussion. This new *Poremskiconus* species is most similar to the Abrolhos Platform (Bahia State, 300 kms north of Guarapari) endemic *P. pseudocardinalis,* Coltro 2004, but differs primarily in being a much larger shell: *P. pseudocardinalis* ranges in size from 14 mm to 24 mm; *P. poremskigrandis* ranges in size from 25 mm to 37 mm (see Coltro, 2004 for illustrations of the variations in shell morphology of *P. pseudocardinalis*). The new species also differs from its northern congener in being a more elongated shell that is broader across the shoulder, in having a much thinner and more fragile shell, in having a proportionally-wider aperture, and in having a shinier and more polished appearance. For comparison images to related *Poremskiconus* species see Plate 3.

ACKNOWLEDGMENTS

We thank Alexandre Pimenta, of the National Museum of Rio de Janeiro (MNRJ), for taking the pictures used in this paper and for his kind support of our research.

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Plate 1. *Dauciconus rosapex* new species, from Espirito Santo State, Brazil.
A, B, C= holotype, length 63.1 mm; **D, E, F**= paratype, length 59.7 mm; **G, H, I**= paratype length 49.4 mm. All specimens were collected in octopus pots (traps) placed in 60-70 m depths, off Marataizes, southernmost Espirito Santo State, Brazil.

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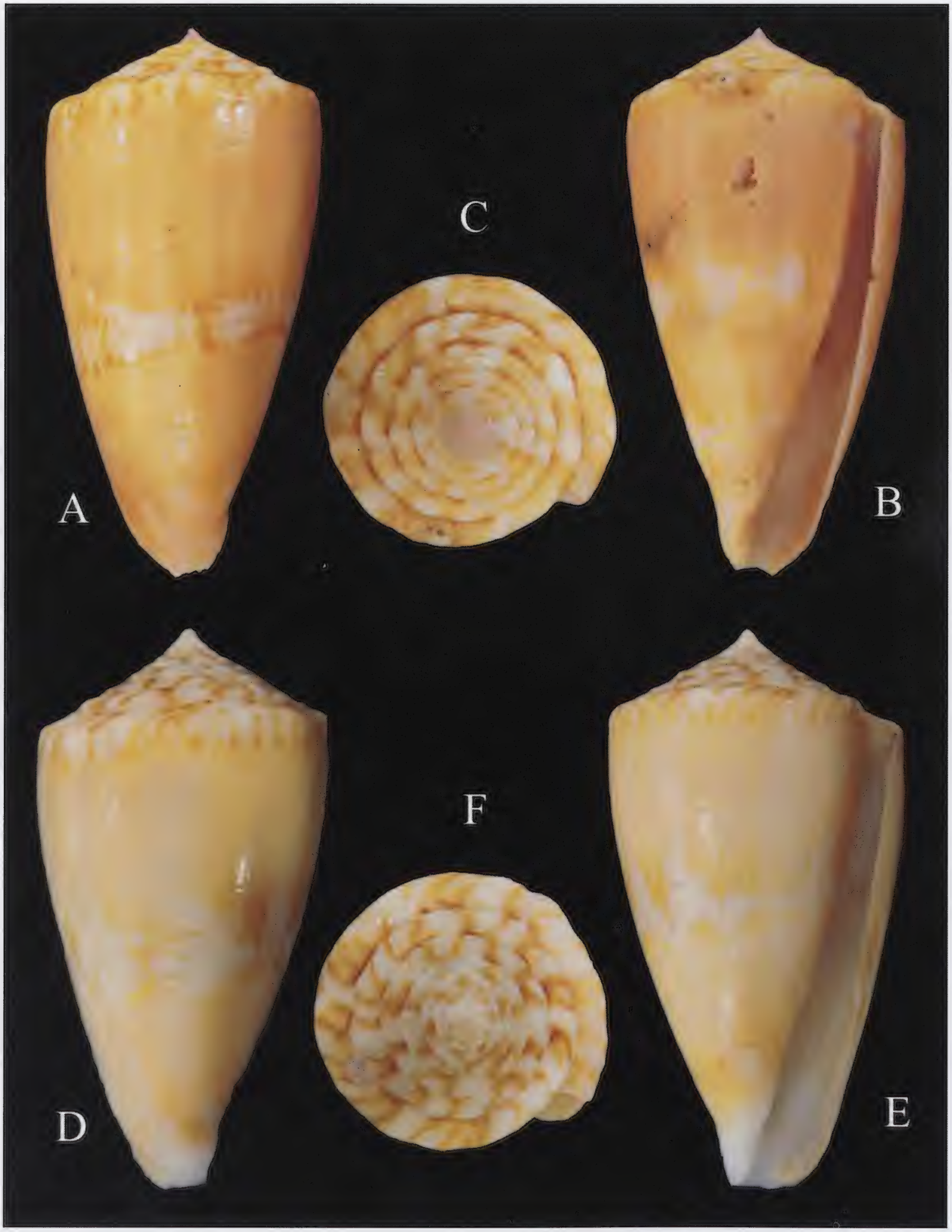

Plate 2. *Poremskiconus poremskigrandis* new species, from Espirito Santo State, Brazil.
A, B, C= holotype, length 36.5 mm; **D, E, F**= paratype, length 33.5 mm. Both specimens were collected in octopus pots (traps) placed in 60-70 m depths, off Guarapari, Espirito Santo State, Brazil.

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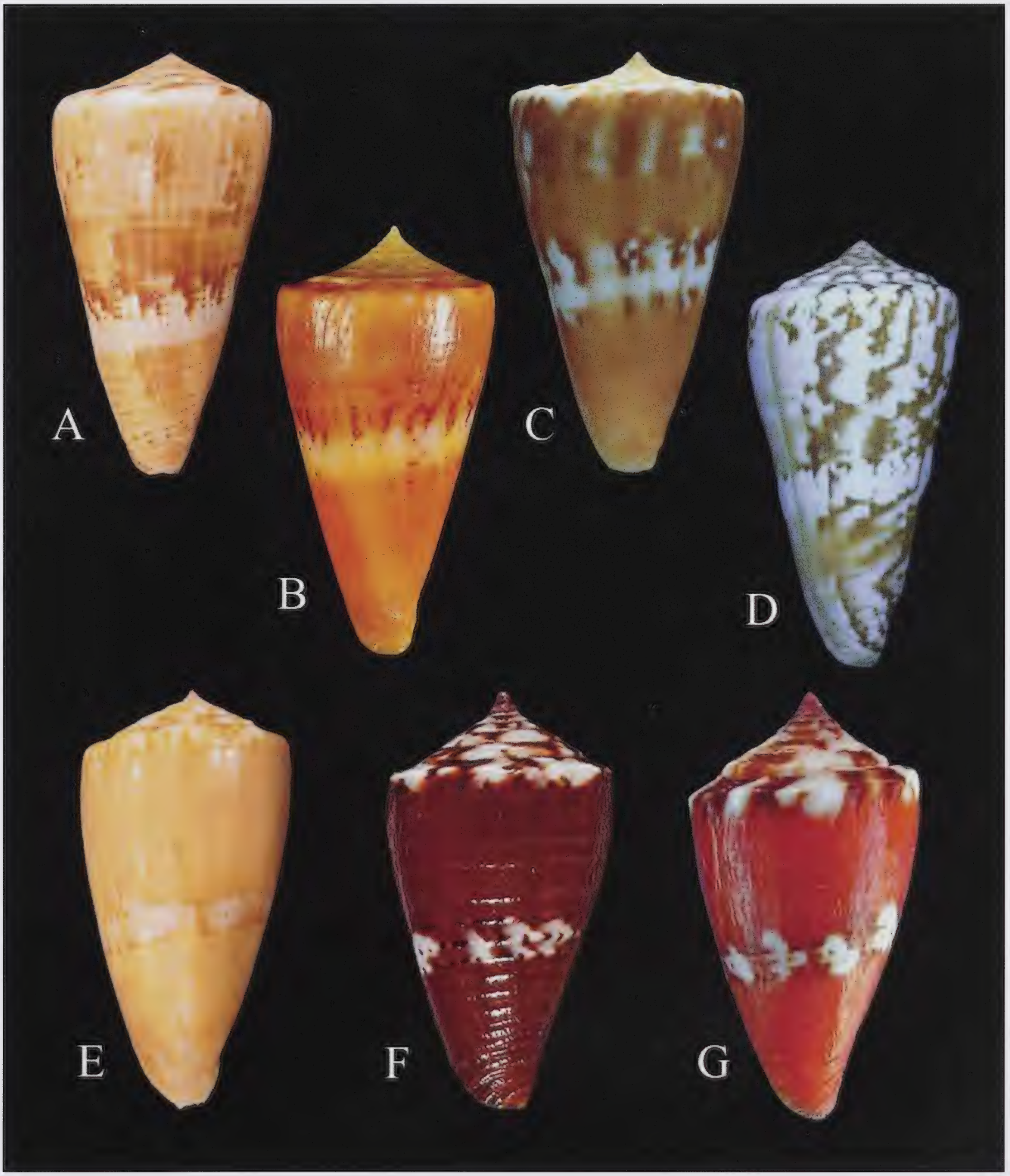

Plate 3. Comparison Plate - *Dauciconus* and *Poremskiconus* species.
A= *Dauciconus rosapex*, n.sp., holotype 63.1 mm in length; **B**= *Dauciconus worki*, Petuch 1998, 32.2 mm in length; **C**= *Dauciconus riosi*, Petuch 1986, 49.0 mm in length; **D**= *Dauciconus luizcoutoi*, Crabos, Pomponet, Queiroz and Passos, 2022, holotype 58.1 mm in length; **E**= *Poremskiconus poremskigrandis*, n. sp., holotype 36.5 mm in length; **F**= *Poremskiconus pseudocardinalis*, Coltro 2004, 17.7 mm in length; **G**= *Poremskiconus pseudocardinalis*, Coltro 2004, 20.1 mm in length.

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Have a shell collection you would like to donate to The San Diego Shell Club?

The San Diego Shell Club is interested in your shell collection. As a 501c(3) organization, all donations to our Club may provide a tax write-off. When we receive a donation we provide a letter describing the items that may be used when filing your taxes. While we cannot provide a value, donations of up to $5,000 do not require a written appraisal. Since tax laws change regularly we recommend that you check with your tax accountant before relying on any information provided here.

We are interested in all types of shells, marine or land and all genera and species, including books on shells as well as items related to shells such as artwork, storage cases and tools. Your donated items will be used to generate income to support the Club's efforts in continuing Public education about shells and conservation of marine life throughout the world. If you would like to donate, please contact David Waller, SDSC Acquisition Chairperson, by email at dwaller@dbwipmg.com to schedule a time to discuss charitable gifting.

CLUB NEWS

February 2023 - On February 18th the Club's general meeting was a presentation by David P. Berschauer on *Pomaulax* of the Western Pacific - Discovery of a New Species from Korean Waters. A link to watch a video recording of the presentation may be found on the Club's website.

March 2023 - On March 18th, the Club hosted it's second in-person general meeting of the year, at the home of Larry and Toni Buck. As in January, this was a social event, with pizza, drinks and snacks provided by the club and a mini-auction with approximately 15 items up for bid, as well as a $5 table with bags of shells of various families available. There was a good turn-out and a good time had by all.

April 2023 - In April, the long-awaited Martin Legacy Collection Auction arrived, and a very good turnout of around twenty Club members attended, including several new members who were active participants in the bidding. Many beautiful shells from the Scott Martin Collection found new homes, and the auction was a great success for the Club, and just plain fun for all!

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A Treasured Trophon From Newport Harbor

Michael C. Couffer
Grey Owl Biological Consulting
716 1/2 Marguerite Avenue, Corona del Mar, California 92625
mikecouffer@gmail.com

From 8 to 17 years of age in the early 1970's I was very much into collecting shells and was taught by my father to label and curate them properly in museum cabinets. I could recite the Latin names, reported geographic ranges and preferred habitat types of all of the Southern California mollusks that I sought. When I was 11 years old in 1973, Dad had a welder build us a shell dredge and big hand-cranked winch to Dad's specifications (Figure 1) and we used our Newport Surf Dory built by legendary Newport Dory craftsman Charlie Horrell to trawl the bottom to 500 ft. (150 m) deep off Southern California.

Figure 1. Dredge and hand winch

It was critical not to get the dredge stuck on the bottom, so we trawled well away from where we thought there might be underwater structure or objects. Each drop was a gamble. We would usually leave the dredge down for a half an hour in shallow water, but in deep water, we'd trawl for an hour. Because I was using a hand winch to retrieve the dredge, it was a lot of effort to winch up a dredge that often left the bottom up to 500 ft. below full of mud. It took the same amount of time to winch the dredge to the surface whether the dredge had been pulled for a half hour or an hour so it was more efficient to leave the dredge on the bottom for longer periods.

Because I grew up in Newport Beach, most of our dredging was done off Newport. The Newport Harbor launching ramps were 10 minutes from home, and Newport Bay is an ancient natural estuary rather than a manufactured harbor. Collecting in Newport Bay was convenient, but it also spoke to the richness of this estuary that many of my most prized shells show "Newport Bay" on their labels. The entire bay once had sand bottom all the way to the salt dike in what is locally called the "Back Bay". In 1969, torrential rains coupled with major construction upstream at the University of California at Irvine washed vast quantities of mud into Newport Bay, forever inundating the bay with silt.

In the 1970's, there was a transition zone off Kerckhoff Marine Lab near Newport Bay's entrance where the silt turned to sand. I always preferred to dredge in sand or transition zones between mud and sand. When I dredged in mud, the dredge would quickly fill with silt and I always wondered how much sediment actually flowed through the mesh to leave shells behind. The same was true for areas with a lot of plant detritus. Did detritus fill the dredge in the first two meters of tow? There was no way to know. The transition zone off Kerckhoff Marine Lab was where I collected many of my

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favorite shells, and on any shell dredging voyage we could not pass that area up without trying.

During the 1970's, we could collect shells on a California sport fishing license, but I don't remember authorities even asking us what we were doing as we dragged our dredge up and down Newport Bay's entrance channel. The sheriffs on the harbor patrol boat looked at us funny, but went about their business. Today, I have a state scientific collecting permit, but I haven't looked into what permitting it would take to dredge for shells in Newport Harbor these days.

So it was that on March 10, 1979, we dropped the dredge 35 ft. (11 m) to the bottom off China Cove in Newport Bay and began a slow pull towards Kerckhoff Marine Lab, just barely making way. At that shallow depth, you could put your hand on the line and feel the dredge bumping across a hard bottom but you could also feel when it hit a patch of mud. When trawling at dead slow across sand, I could feel the dredge dig in and slow our progress if we moved into mud. So our technique for Newport Harbor was to start in sand and dredge towards mud. We wished to trawl different habitat types separately, so when we hit the mud and the dredge filled with silt, it was time to pull the dredge. The sandy central channel of Newport Harbor in front of Kirchhoff Marine Lab was an area rich in fauna. We wore gloves to sort through dredge treasures because of stinging sea pens. That pull, I winched up a dredge half-filled with vegetation. Too much vegetation is a problem, right? In this case, the vegetation cushioned an extremely delicate shell inside. As I pulled apart a ball of vegetation, inside was a living Catalina Trophon, *Austrotrophon catalinensis* (Oldroyd, 1927), in perfect condition (Figures 2 and 3)! This was not a dead shell washed off the deck of a trawler because there was no fleet of trawlers docked in Newport Harbor and one would expect a delicate trophon to be broken as it was washed across a deck. Ours was a live Catalina Trophon from 35 ft. of water that had been living on sandy bottom amongst detritus off Kerckhoff Marine Lab. Dad and I stared at the trophon in shock. We guessed that this meant it was time to call it a day and motor back to the dock with our prize!

In the 1970's, this mollusk was considered to live in "deep water". A monumental treatment by the Department of the Interior's Minerals Management Service published in 1996 stated that the species occupied soft bottoms 130 to 525 ft. (40 to 160 m) deep from Point Conception to Punta Abreojos, Baja California. Those depths are considerably deeper than the 35 ft where we found our live trophon. The species is reported to be 80 to 100 mm long. Our shell is half that size at 38 mm long, 27 mm tall, and 26 mm wide, hence a young Catalina trophon.

We never found another Catalina trophon, but that was fine. My collection includes several rare shells from the Galapagos given to me in 1973 by the DeRoy family such as *Strombina deroyae* (W. K Emerson & D'Attilio, 1969) and *Terebra jaquelinae* (Bratcher & R. D. Burch, 1970) (named for Jaqueline DeRoy). But my prize is still what was then named *Trophon catalinensis* that has since been renamed *Austrotrophon catalinensis* from 35 ft. of water and 3/4 of a mile (one km) from my house. It was immensely satisfying to have caught a perfect specimen of what was the most sought-after shell in California in my home port and not at some distant location or at an abyssal depth. We gave The Dory to a friend many years ago, but my dredge and winch still sit high on a shelf in my garage, waiting for a day when they are pulled down into service again and the ocean washes the dust and cobwebs away.

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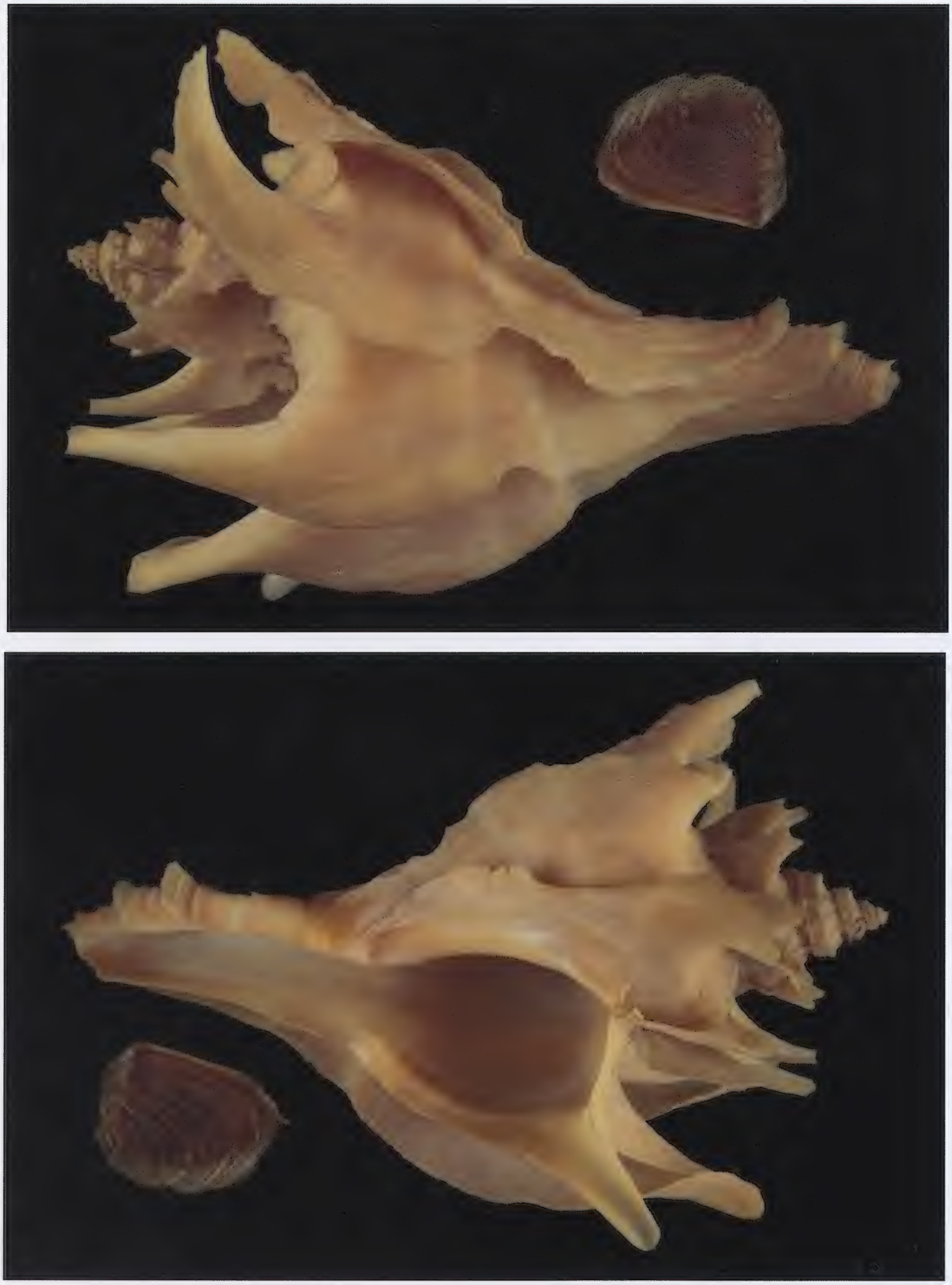

Figures 2 (top) and 3 (bottom) *Austrotrophon catalinensis* (Oldroyd, 1927), 38 mm in length. Dredged live on March 10, 1979, in sand at 35 feet off China Cove in Newport Bay, California.

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The Upper Size Range of *Olivella baetica* Carpenter, 1864

Roger A. Evans
3120 Sepulveda Blvd, Unit 214, Torrance, California 90505
c/o elise.d.evans@gmail.com

While the size of a record shell may be of interest, a size list from a large sample often provides a better understanding of what determines a large specimen within a given species. The following list records the greatest measurable dimension of all specimens 16 mm or larger from a sample of 336 specimens of *Olivella baetica* Carpenter, 1864, collected from Redondo Beach, California, south to near Point Vicente, Palos Verdes, California, during the years of 1976 through 1980. All the shells were collected dead, with no preference given to size, while diving at 6 to 20 meters by the author. Reluctant to measure all 336 shells, specimens starting at 16 mm were chosen as they were notably larger than most of the sample. The measured specimens numbered 78, or 23% of the sample.

James McLean, 1978, gave the geographical range of *O. baetica* from Kodiak Island, Alaska, to Cape San Lucas, Baja California, with a height of 10-17 mm. While McLean wrote they were, "common offshore on sandy bottoms in shallow water", I didn't encounter them in large numbers and was pleased to find a nice specimen. David P. Berschauer and Roger N. Clark, 2018, gave the southern range to Southern California, with a size to 20 mm.

Olivella baetica Carpenter, 1864, 16.0 mm or larger from a total sample of 336:

22.2 mm	18.4 (2)	17.4 (2)	16.5 (5)
21.5	18.3 (2)	17.3	16.4 (5)
20.5	18.2	17.2	16.3 (4)
19.8	18.1	17.1 (2)	16.2 (2)
19.5	18.0 (3)	17.0 (6)	16.1 (2)
18.8	17.9 (4)	16.9 (2)	16.0 (8)
18.7	17.7 (2)	16.8 (2)	
18.6	17.6 (2)	16.7	
18.5 (2)	17.5 (6)	16.6 (2)	

The largest sample specimen, 22.2 mm, discolored by areas of mud near the collection site, was collected off Torrance Beach, California, in 1976, and was the 1980 and 1987 "Lost Operculum Club" (hereinafter "LOC") record and the 1997 through at least 2008 Registry of World Record Size Shells (hereinafter "WRS") record. The previous record was 22.1 mm, collected at San Pedro, California, in 1904, held by C.A. and C.L. Martin and formerly in the Tremper collection. Clifford A. (1910-1992) and Clifton L. Martin (1910 – 1996), twin brothers, were members of the San Diego Shell Club and had seven 1987 LOC records. The 2016 WRS *O. baetica* record was a photographed 14.48 mm specimen collected in the U.S.A. in 1995, held by Dwayne Dinucci. The 19.8, 20.5, and 21.5 mm specimens were collected off the Palos Verdes Peninsula and the 19.5 mm shell was from Redondo Beach. The smallest sample specimen is just short of 6.5 mm, followed by a 9.8 mm *O.*

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baetica from Palos Verdes, near Flat Rock. In the above data table when two or more shells measure the same size, their number is given in parenthesis.

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Figure 1. *Olivella baetica* Carpenter, 1864. **A**= 22.2 mm, Torrance Beach, California; **B**= 21.5 and 20.5 mm, Palos Verdes, California; **C**= 19.8 and 15.5 mm, Palos Verdes, California. All photos taken with an iPhone 12 and Xenvo macro lens by Paul Stillians adjacent to a ruler with millimeter markings; photos used with written permission.

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Volume: 55 THE FESTIVUS ISSUE 2

The Completeness of Thematic Collections - a Venn Diagram-Based Conceptual Approach

Cesare Brizio
World Biodiversity Association, Museo Civico di Storia Naturale di Verona, Lungadige Porta Vittoria, 9 - 37129 Verona, Italy
briziocesare@gmail.com

ABSTRACT Multiple factors influence the degree of completeness of any thematic collection, such as a biological collection encompassing any natural group, but even any collection of man-made items (including art collections and object collections) that encompass any specific theme. The concept of "completeness" itself is both subjective, inasmuch as it may refer to any purpose unilaterally defined by the collector, and objective, inasmuch as that purpose includes an exhaustive coverage of the actual diversity inherent in the chosen group. In a general sense, also the factors (or "conditions") that exert their influence on the collection process can be grouped in two dimensions: objective (availability) and subjective (desirability). The former, quantitatively ranging from rarity to abundance, is subject to collection bias as scientifically defined, while the latter defines the subjective aims of the collector. Both are influenced by cognitive biases, whose discussion is beyond the scope of this short paper, meant just to provide a graphical representation, based on logical Venn diagrams, of those main conditions, and to elucidate the discrete categories at the intersection of the observed sets of items.

KEYWORDS Collection, completeness, bias, Venn diagrams

INTRODUCTION

Any collection, including but not limited to musealized or personal collections of biological specimens (seashells, insects...) can be evaluated more or less complete, by its degree of correspondence with the declared objective of its collector. Any collection develops in time across the phases of inception, growth and possibly completion: at any moment in time, the status of the collection is the expression of the interaction of a very few objective and subjective factors, that can roughly but effectively be grouped in two dimensions, availability and desirability. We will refer to those factors as "conditions", that must co-exist for a viable collection process.

The graphical depiction of logical sets, in the form of the well-noted Venn diagrams, may help in elucidating the existence of a few discrete categories that influence and define the status of the collection, *e.g.* the number of specimens of a given species, or the number of pictures of a given painter, or the number of wristwatches of a given brand. (Venn, 1880)

Those graphics will hopefully provide an insight on the reasons why – excluding exceptions – collections usually provide a limited, or biased, representation of the very diversity they are aimed at covering.

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MATERIALS AND METHODS

A total of five objective or subjective conditions are considered and traced back to their respective dimension. They include:

- a - Accessibility – an objective condition: to the purpose of this paper, as a factor of availability, accessibility means the physical presence of a given item in the environment or place where it is searched for. An extant item that isn't accessible can't become available. As an example of unavailability, we may cite an historical artifact whose location is unknown.
- v – Visibility (or conspicuousness) – an objective condition, with distinctions: in the context of availability, a visible item is any item that can be located by the means used for its research. For the unaided eye, a very small specimen may be invisible. But if a microscope is used, it may be easily located among several similar or dissimilar items. But many more things hide under the carpet of "visibility", and one question is revealing: to which degree it could reasonably be expected that a collection actually represent its target diversity scope? To answer that question exhaustively, it would be necessary to go very far beyond the aims of this short paper, by delving into the concept of collection bias. An ever-present combination of cognitive biases, such as those discussed by Kahneman (2000), Kuhn (1970) and Plous (1993), collection bias was particularly well explored in the realm of biodiversity studies. Just one reference is included as a tribute to this complex and interdisciplinary issue: as Oliveira et Al. (2016) brilliantly illustrate, cognitive biases are a deceptive and underhanded enemy. Their rich bibliography provides an excellent starter for those interested in collection bias in the natural sciences. Coming to practical terms, the much less ambitious aim of this contribution is exposing and shortly commenting the few most relevant and coarse-grained factors affecting the composition of any collection. In that respect, "visibility", as defined above, may include both the incidence of the collection biases, and their mitigation, based on being aware of their disruptive potential. By remembering that we all see very selectively, under the influence of cognitive biases we can maintain the awareness that one's sight is often much worse than he/she believes.
- r Recognisability – an objective condition, with distinctions: in the context of availability, a recognizable item is any item that displays diagnostic characters, allowing to refer it to a specific entity such as a biological species, or a specific brand and model of wristwatch, or as a painting of a specific painter. Obviously, in actuality the successful recognition depends on the degree of competence of the person in charge of this activity – and this introduces a degree of subjectivity. Furthermore, the degree of contention on nomenclatural / systematics issues related with the item (biological or non-biological) may influence the reliability of the recognition. In the context of biological collections, recognisability brings us into the issue of the quality of scientific literature, potentially opening the Pandora's box of non-peer-reviewed or otherwise unnecessary nomenclatural acts, that cast doubts about the validity of some of the discrete categories on which recognisability is based, that is to say species and subspecies (let alone forms). To the aim of this short paper, let's just consider that the provisions by the International Code of Zoological Nomenclature proved unable to avoid the emergence of questionable taxonomical entities - only the adoption of a voluntary, peer reviewed higher standard, that we may informally define as "serious science", can prevent the appearance of "psychospecies" (Tursch & Greifeneder, 2001) and of pseudo-scientific entities sometime created for commercial purposes only. See also Relevance, more under.
- a' - Affordability – a subjective condition: only the items compatible with the purchasing power of the collector. Furthermore, any collector may modulate his/her expenditure depending on the next condition, relevance. See also Relevance, more under.
- r' - Relevance – a subjective condition, intrinsically linked with the purpose of the collection. The

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collection may be purely esthetical or scientific. The same item, or specimen, may be unmissable for a collector, and completely uninteresting for another. Different items may bring different relevance for any collector, with relevance influencing affordability. The main driver of relevance being the recognition of the item (as a given species, brand, model...) it would be very tempting to introduce in the graphics even another factor/condition, reliability. A different course of action was taken: reliability may be viewed as much as an objective (reputation) and a subjective (trust) factor. To the aims of the collecting process, exceptional specimens/items may be collected by the collector himself/herself, by expert researchers or dealers, as well as by occasional researchers or dealers. Even though it's clear that an expert is less prone to recognition errors, nobody would refuse an exceptional item from an inexpert or discredited dealer. It's a responsibility of the collector to ascertain to his/her own satisfaction that the item is desirable. Summarizing, the unclear positioning and conditionality of the "reliability" condition prompted the author to omit it from the graphics, and to put it under the umbrella-definition of "Relevance", as any task delegated to the collector's own judgement.

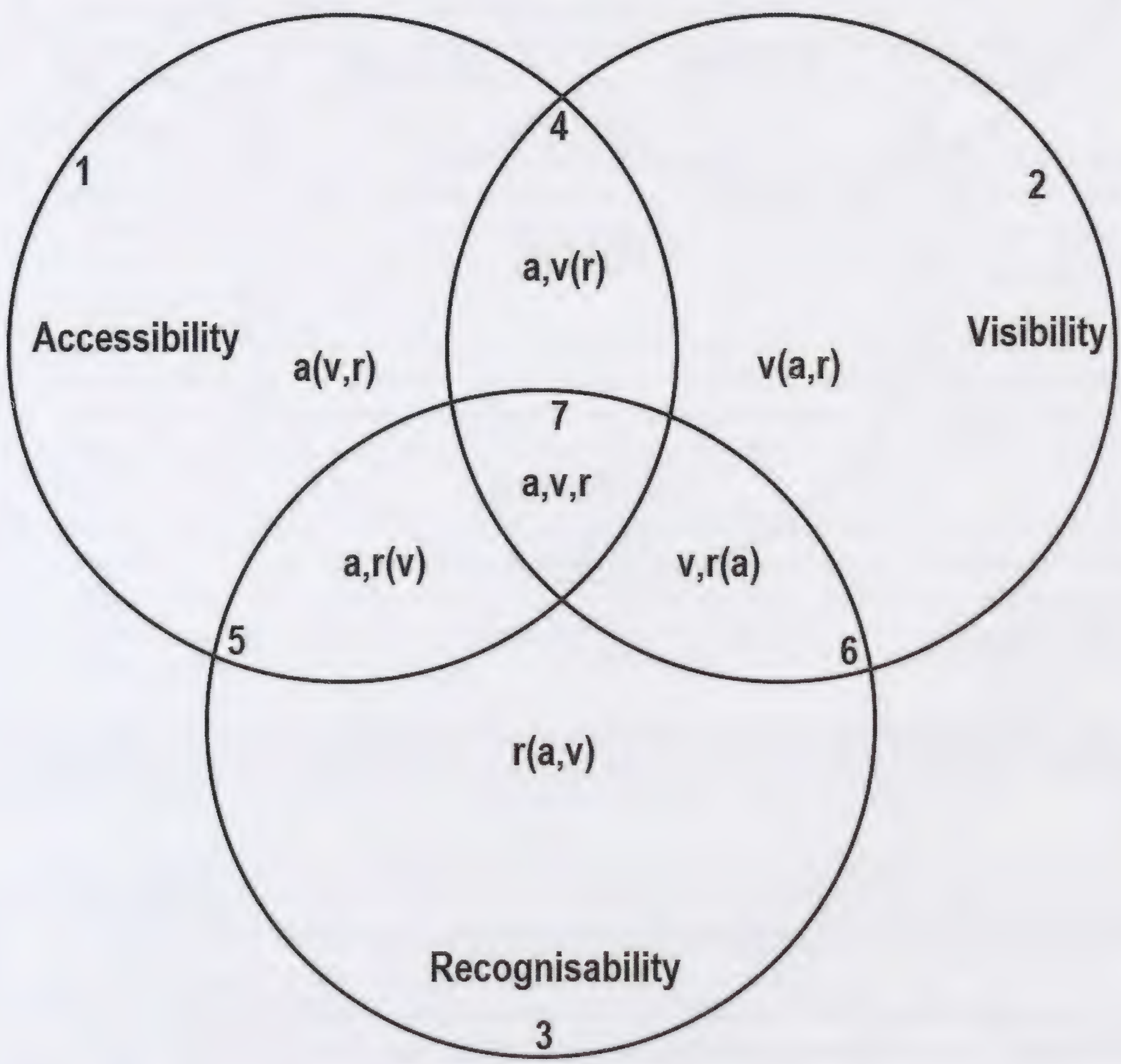

Figure 1. The "Availability" conditions and their interactions.

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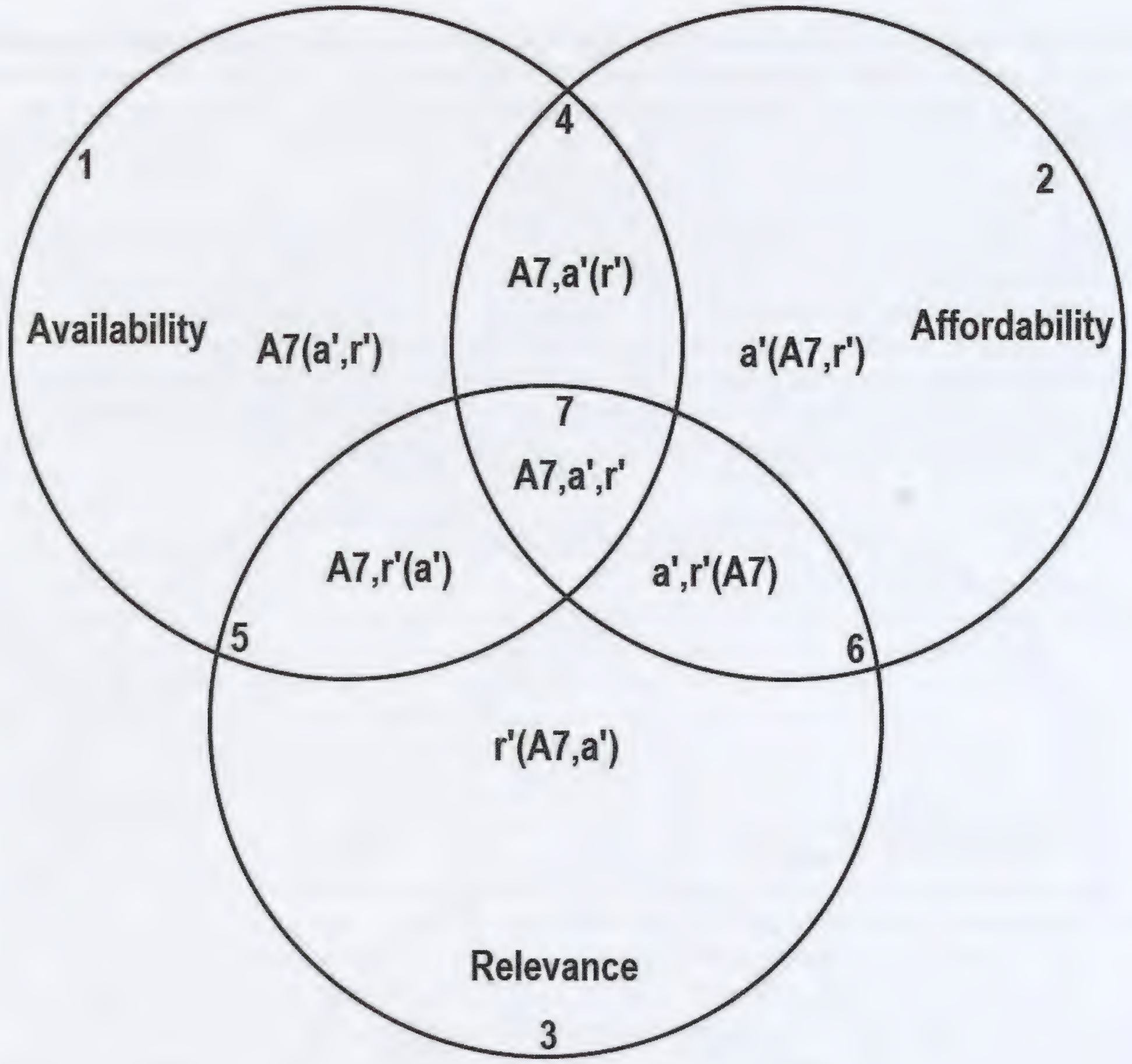

Figure 2. The "Desirability" conditions and their interactions.

Two three-set Venn diagrams are here proposed as Figure 1 and Figure 2 and provide respectively a representation of the logical dimensions availability (A) and desirability (D), including three main factors each.

The areas of intersection are numbered and marked with a notation like x(y,z) where the unsatisfied conditions are in brackets, the satisfied conditions are before and outside the brackets.

Availability is a precondition for desirability. At the same time, it makes no sense to put the individual factors a, c, r as separate sets in Figure 2 overlapping c' and r'. For these reasons, in Figure 2 the notation A7 indicates the Availability as a whole, in other words the effectively available items that are available as long as they satisfy the conditions of accessibility, conspicuousness and recognisability (area number 7 in Figure 1).

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DISCUSSION

The reasoning behind Figure 1 and Figure 2 is as follows. First and foremost, to enter a collection, an item must be "available": at some moment, somebody accessed the item, saw it, recognized it. All the three preconditions are of paramount importance to generate a collectable item. Let's comment in detail the seven areas of Figure 1:

- Area 1 – a(v,r): the item is there where one would expect, yet nobody is specifically looking for it. Even if it was clearly visible, it would not be recognized. This is a suitable definition for most undescribed, small species that usually emerge only with a massive or invasive action of sampling is performed, with no other purpose than "seeing what one gets".
- Area 2 – v(a,r): the item/specimen would be visible, if just someone could access it and recognize it – this area covers the stage set for the "barn finds" of rare cars as well as the stage of any epiphany taking place in other areas of the diagram.
- Area 3 – r(a,v): a suitable area for the realm of cryptozoology, as well as for the quest for the Holy Grail. Many species that would be recognizable, if only they were easier to see, are awaiting to be rediscovered, but nobody is there to try!
- Area 4 – a,v(r): like Poe's "Purloined Letter", rare items lay in plain sight, in the small shop window or among the commonest species in well accessible places. This area would cover any cryptospecies within a well-established group, as well as the rare trove we are unknowingly keeping in our own attic. Similarly, this area may cover the case of many species that could be reached with minimal effort.
- Area 5 – a,r,(v): field research, or any other systematic search for something, performed without proper instrument or without the right attention, will make us miss the opportunities. as an example, the relevant collection bias against small specimens may transform in rarities even common species with the only distinction of the small size. That way, «difficult to notice» becomes «rare».
- Area 6 – v,r(a): It isn't there! You would easily see it and recognize it but looking for a species outside its range, or looking for an item in the wrong shop, brings one right into this area.
- Area 7 – a,v,r: all set up: veni, vidi, vici. A candidate item / specimen is ready for the collectors. To the aim of this paper, we postulate that whenever the specimen is accessible, visible and recognizable, it will be collected.

As stated before, to candidate an item for the collection all the conditions need to be satisfied: hence, A7 is one of the three condition in Figure 2, that includes the following areas:

- Area 1 – A7(a',r'): a pricey item indeed, but it's no problem, as long as the collector is uninterested.
- Area 2 – a'(A7,r'): even though the item is surely affordable, it's currently unavailable. This situation causes no concern, because the collector is uninterested.
- Area 3 – r'(A7,a'): a situation where the collector is eager to acquire an interesting item, but it's so rare that it's currently unavailable. Furthermore, it would probably be unaffordable.
- Area 4 – A7,a'(r'): specimen affordable but uninteresting – may be purchased just because it's cheap, but iterating this pattern results in a collection where cheaper items are over-represented, regardless of their relevance.
- Area 5 – A7,r'(a'): a relevant specimen is available, but unaffordable – purchase delayed,

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hoping that wealthier collectors don't harbor the same likings.

- Area 6 – a',r'(A7): no relevant and affordable specimen is available – the collection does not increase.
- Area 7 – A7,a',r': the affordable and relevant specimen/item enters the collection under the ideal conditions of availability and desirability.

CONCLUSIONS

Any collection is a compromise. Its scope may be ambitious but, unless great resources and manpower are available, what one gets is a "fact-based collection", the fruit of concurring availability and desirability, two dimensions based on multiple and interacting factors. Almost invariably, the commonest species or items will be over represented while even big investments shan't be able to overcome the objective shortage of the most uncommon material.

By exposing in an intuitive way the interacting and often unnoticed and inexplicit factors that govern the evolution of a collection through time, this contribution will hopefully provide a better understanding of the collecting process, or even set the bases for a better purchasing strategy.

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Volume: 55 THE FESTIVUS ISSUE 2

Iconography of Brazilian Conidae

David P. Berschauer
Museum Associate, Natural History Museum of Los Angeles County
shellcollection@hotmail.com

The following is a complete up-to-date iconography of the Conidae fauna of the Brazilian Molluscan Province and Paulinian Molluscan Province arranged by biogeographical province and subprovince.

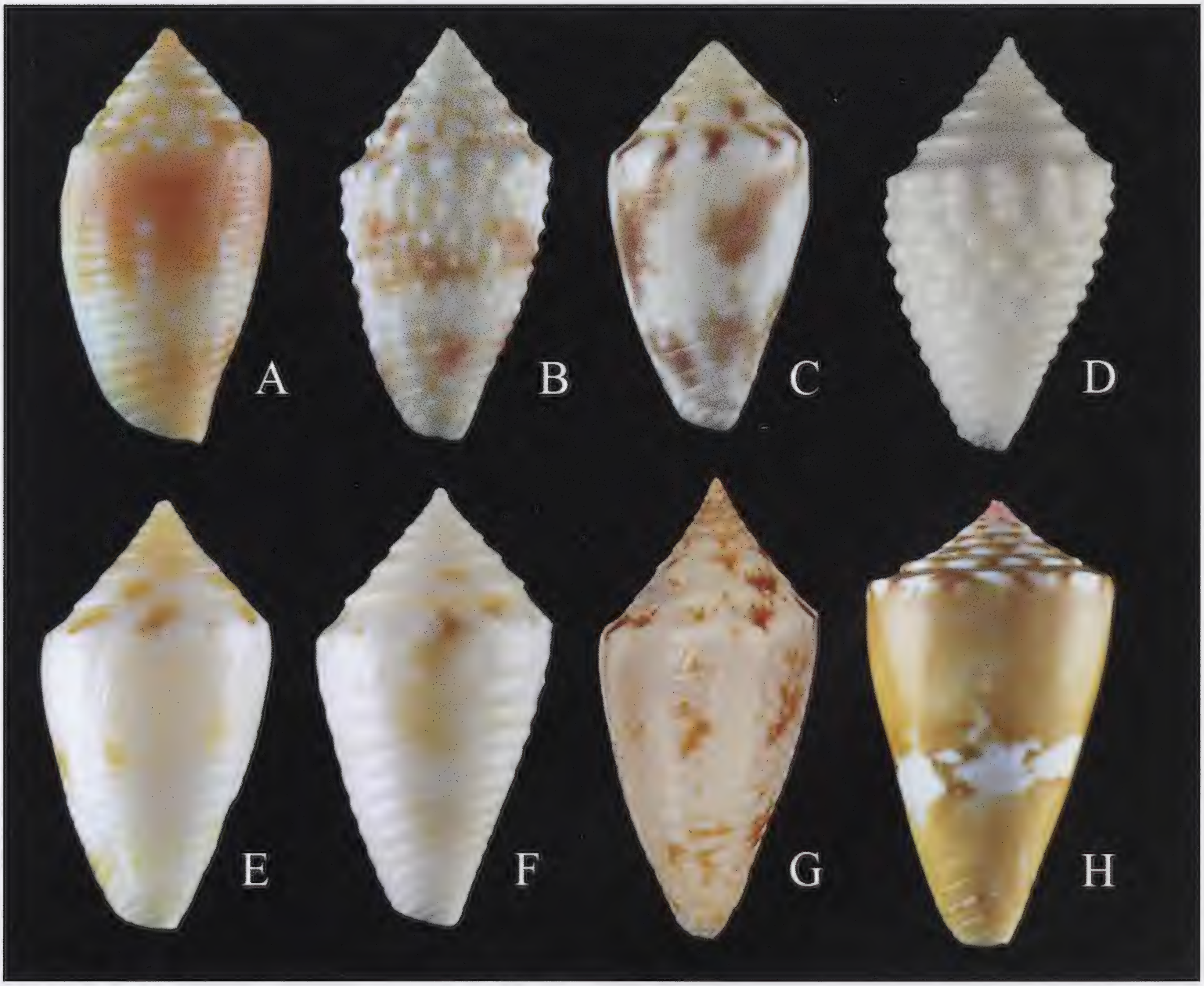

Plate 1. Brazlian Molluscan Province: Cearaian Subprovince.
A= *Jaspidiconus damasoi* (Cossignani, 2007), length 11.0 mm; **B**= *Jaspidiconus damasomonteiroi* Petuch and Myers, 2014, length 18.0 mm; **C**= *Jaspidiconus serafimi* Petuch and Berschauer, 2019, length 16.0 mm; **D**= *Jaspidiconus toincabrali* Petuch and Berschauer, 2019, length 19.0 mm; **E**= *Jaspidiconus icapui* Petuch and Berschauer, 2018, length 15.0 mm; **F**= *Jaspidiconus joanae* Petuch and Berschauer, 2018, length 16.0 mm; **G**= *Jaspidiconus anacarolinae* Cossignani, 2019, length 18.0 mm; **H**= *Poremskiconus mariaodeteae* Petuch and Myers, 2014, 22.0 mm.

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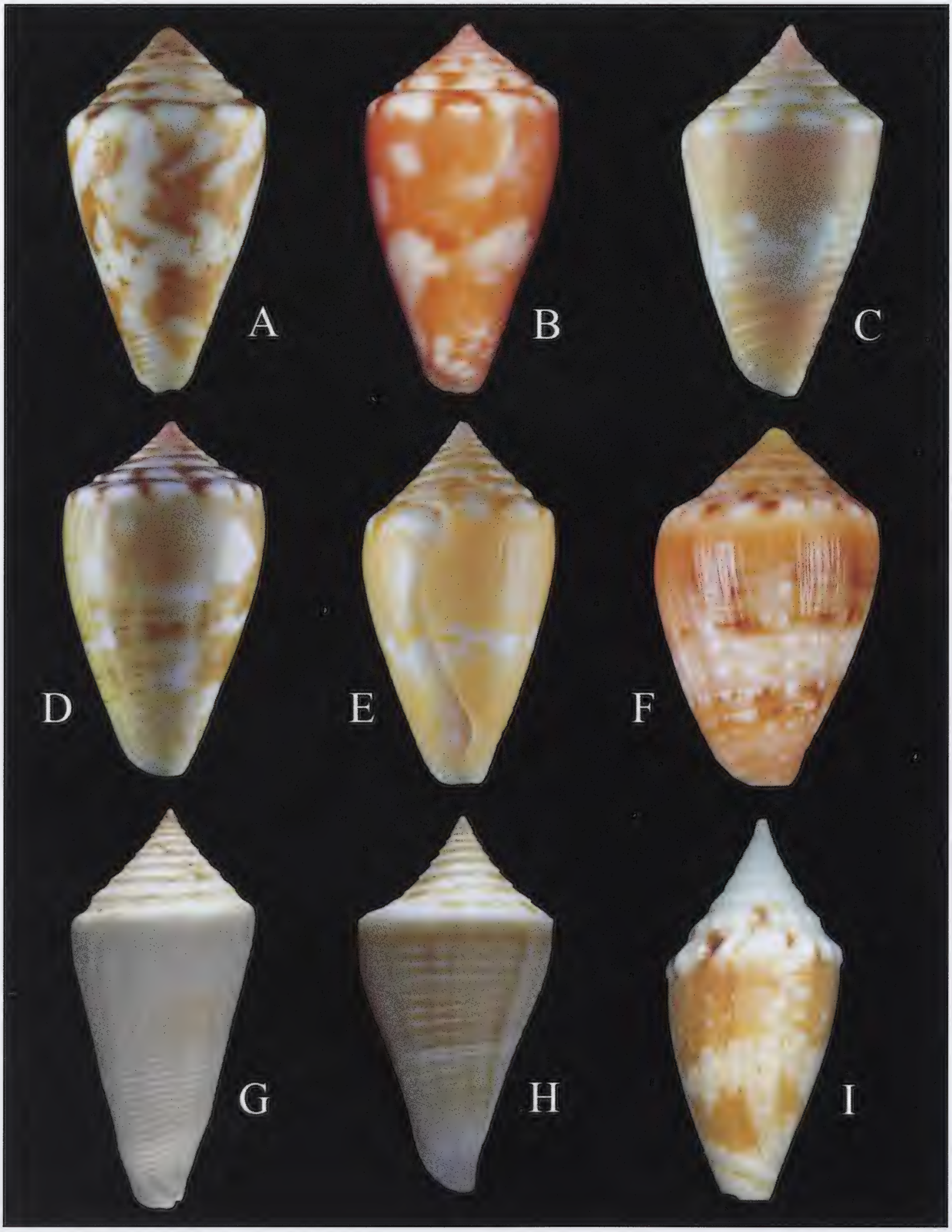

Plate 2. Brazlian Molluscan Province: Cearaian Subprovince.
A= *Poremskiconus smoesi* Petuch and Berschauer, 2016, length 20.0 mm; **B**= *Poremskiconus tourosensis* Petuch and Berschauer, 2018, length 21.0 mm; **C**= *Poremskiconus fonsecai* Petuch and Berschauer, 2016, length 15.0 mm; **D**= *Poremskiconus mauricioi* (Coltro, 2004), length 21.0 mm; **E**= *Poremskiconus potiguar* Petuch & Berschauer, 2019, length 15.0 mm; **F**= *Artemidiconus selenae* (Van Mol, Tursch & Kempf, 1967), length 13.8 mm; **G**= *Conasprelloides hazinorum* Petuch and Myers, 2014, length 60.0 mm; **H**= *Conasprelloides brunneobandatus* (Petuch, 1992), length 28.0 mm; **I**= *Brasiliconus scopulorum* (van Mol, Tursch & Kempf, 1971), length 20.0 mm.

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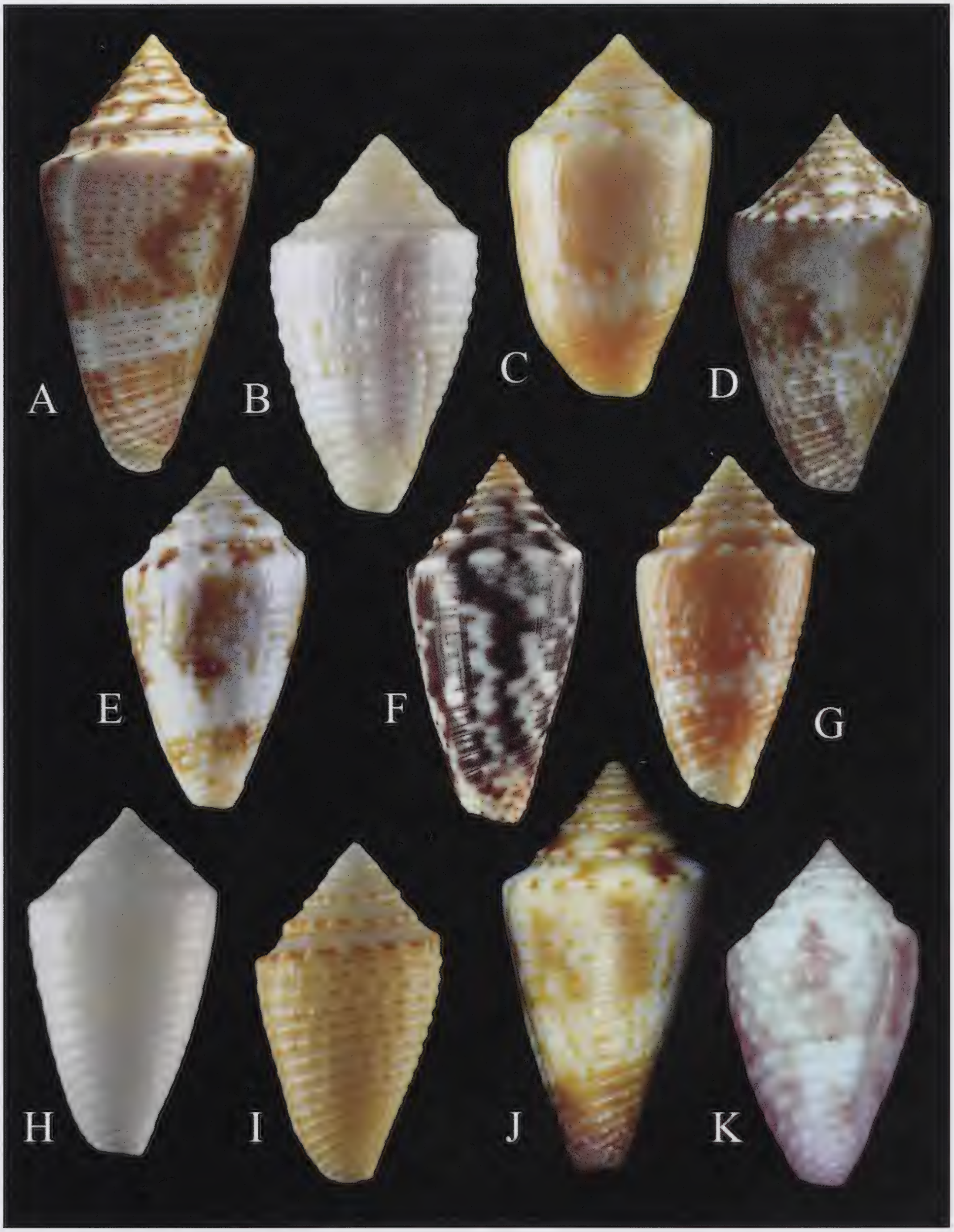

Plate 3. Brazilian Molluscan Province: Bahian Subprovince.
A= *Jaspidiconus ericmonnieri* Petuch and Myers, 2014, length 47.0 mm; **B**= *Jaspidiconus crabosi* Petuch and Berschauer, 2018, length 16.0 mm; **C**= *Jaspidiconus itapua* Petuch and Berschauer, 2018, length 12.0 mm; **D**= *Jaspidiconus josei* Petuch and Berschauer, 2016, length 20.0 mm; **E**= *Jaspidiconus keppensi* Petuch and Berschauer, 2018, length 10.0 mm; **F**= *Jaspidiconus ramosorum* Petuch and Berschauer, 2019, length 22.0 mm; **G**= *Jaspidiconus poremskii* Petuch and Myers, 2014, length 12.0 mm; **H**= *Jaspidiconus pomponeti* Petuch and Myers, 2014, length 10.0 mm; **I**= *Jaspidiconus henckesi* (Coltro, 2004), length 15.0 mm; **J**= *Jaspidiconus barragrandensis* Crabos, Pomponet, Queiroz & Passos, 2022, length 20.4 mm; **K**= *Jaspidiconus tibauensis* Crabos, Pomponet, Queiroz & Passos, 2022, length 16.9 mm.

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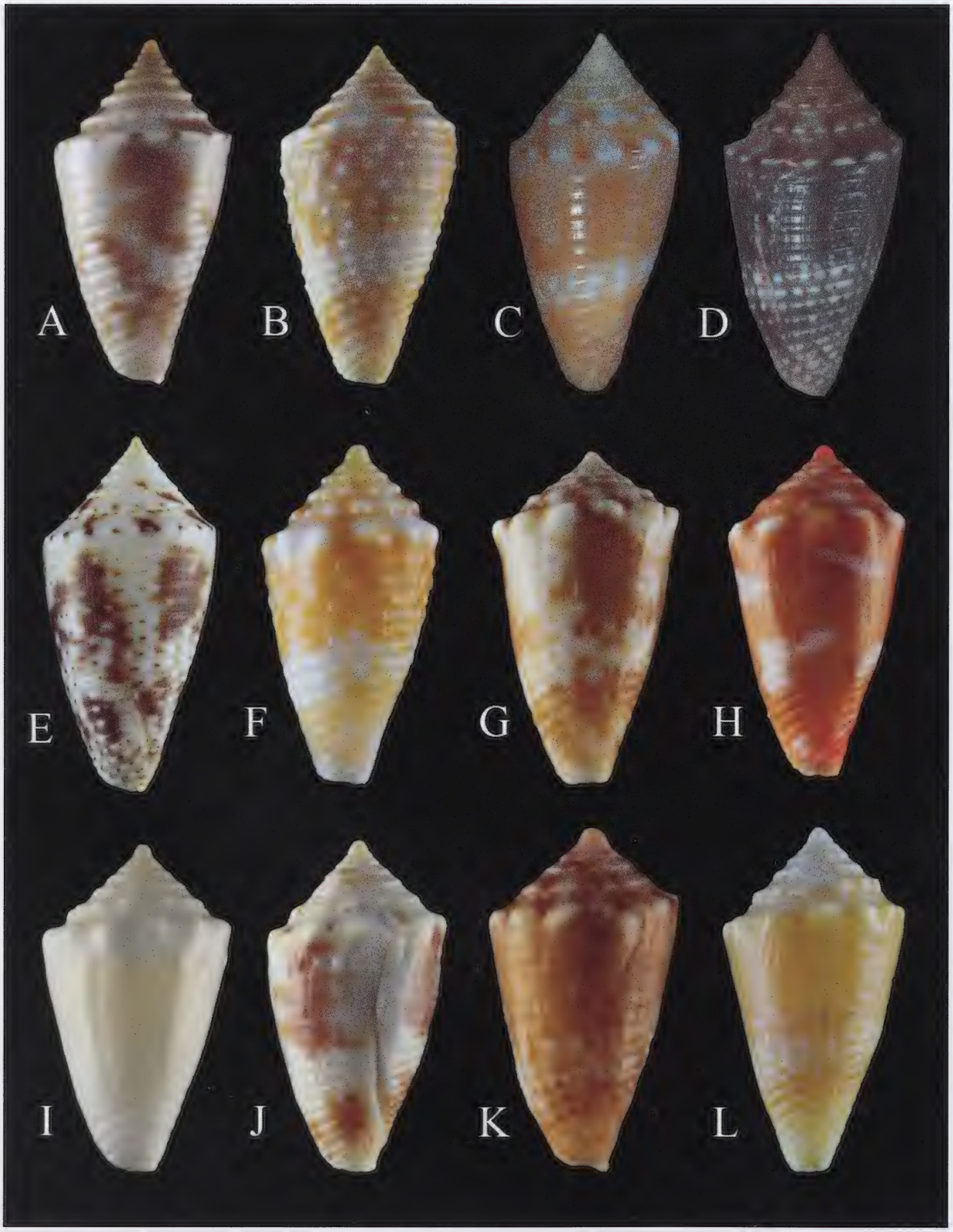

Plate 4. Brazlian Molluscan Province: Bahian Subprovince.
A= *Jaspidiconus marinae* Petuch and Myers, 2014, length 12.0 mm; **B**= *Jaspidiconus ogum* Petuch and Myers, 2014, length 15.0 mm; **C**= *Jaspidiconus vanini* Crabos, Olivera, Almeida & Queiroz, 2021, length 21.0 mm; **D**= *Jaspidiconus tinharensis* Crabos, Olivera, Almeida & Queiroz, 2021, length 20.9 mm; **E**= *Jaspidiconus carlagrezziae* Petuch, Coltro and Berschauer, 2020, length 21.3 mm; **F**= *Coltroconus bianchii* Petuch and Berschauer, 2018, length 8.0 mm; **G**= *Coltroconus bodarti* (Coltro, 2004), length 13.0 mm; **H**= *Coltroconus delucai* (Coltro, 2004), length 11.0 mm; **I**= *Coltroconus henriquei* Petuch and Myers, 2014, length 10.0 mm; **J**= *Coltroconus iansa* (Petuch, 1979), length 14.0 mm; **K**= *Coltroconus schirrmeisteri* (Coltro, 2004), length 8.0 mm; **L**= *Coltroconus valianti* Petuch, Coltro and Berschauer, 2020, length 12.4 mm.

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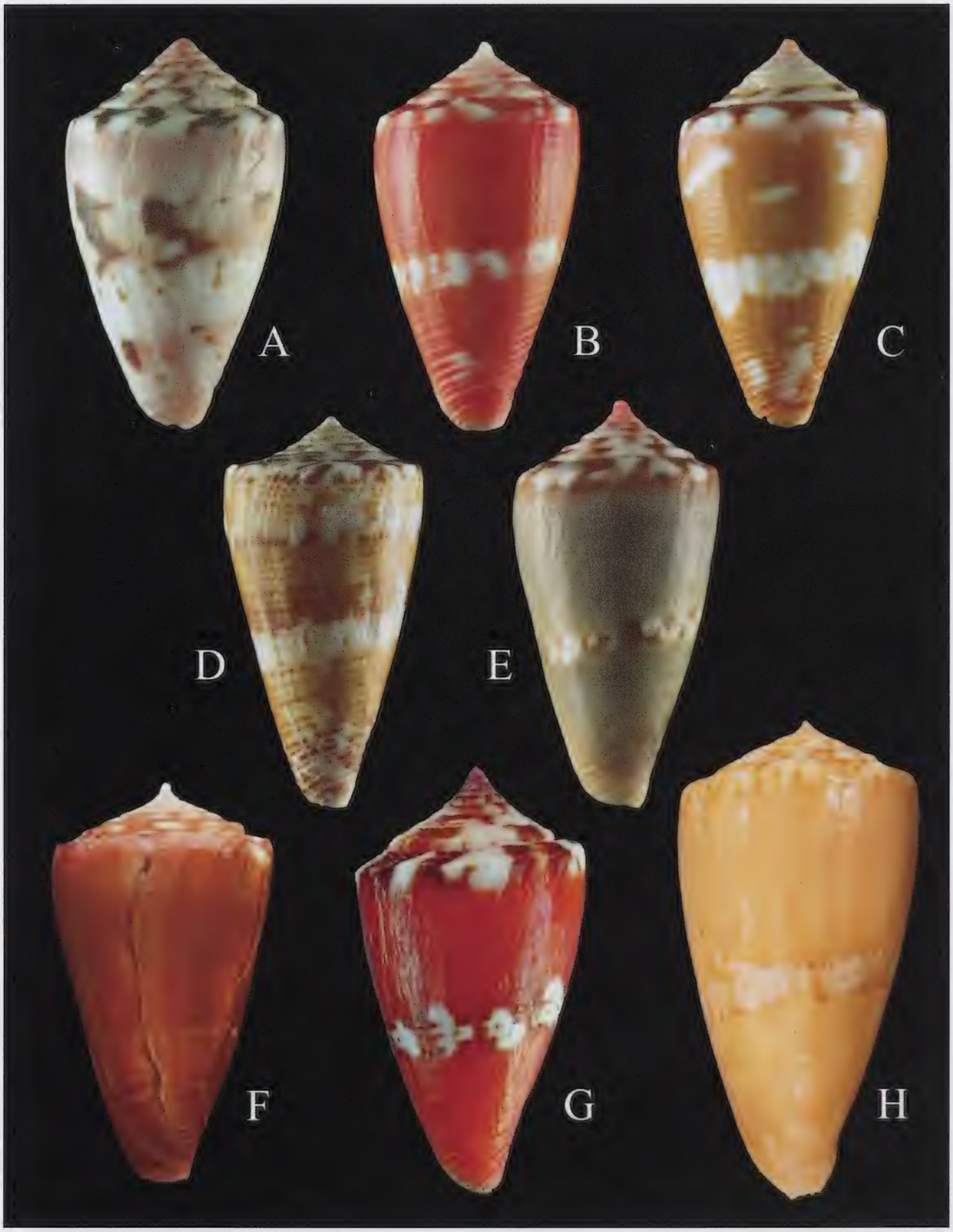

Plate 5. Brazlian Molluscan Province: Bahian Subprovince.
A= *Poremskiconus brasiliensis* (Clench, 1942), length 20.0 mm; **B**= *Poremskiconus bertarolleae* (Costa and Simone, 1997), length 23.0 mm; **C**= *Poremskiconus abrolhosensis* (Petuch, 1978), length 22.0 mm; **D**= *Poremskiconus cargilei* (Coltro, 2004), length 28.0 mm; **E**= *Poremskiconus uhlei* Petuch, Coltro and Berschauer, 2020, length 19.0 mm; **F**= *Poremskiconus tonisii* (Petuch & Myers, 2014), length 26.0 mm; **G**= *Pormenskiconus pseudocardinalis* (Coltro, 2004), length 20.1 mm; **H**= *Poremskiconus poremskigrandis* Crabos, Pomponet, Queiroz & Passos, 2023, length 36.5 mm.

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Plate 6. Brazlian Molluscan Province: Bahian Subprovince.
A= *Conasprelloides coltrorum* Petuch and Myers, 2014, length 73.0 mm; **B**= *Dauciconus riosi* (Petuch, 1986), length 49.0 mm; **C**= *Sandericonus ednae* (Petuch, 2013), length 29.0 mm; **D**= *Dauciconus jorioi* Petuch, 2013, length 53.0 mm; **E**= *Poremskiconus archetypus* (Crosse, 1865), length 17.8 mm; **F**= *Dauciconus worki* (Petuch, 1998), length 32.2 mm; **G**= *Dauciconus luizcoutoi* Crabos, Pomponet, Queiroz & Passos, 2022, length 58.1 mm; **H**= *Dauciconus rosapex* Crabos, Pomponet, Queiroz & Passos, 2023, length 63.1 mm.

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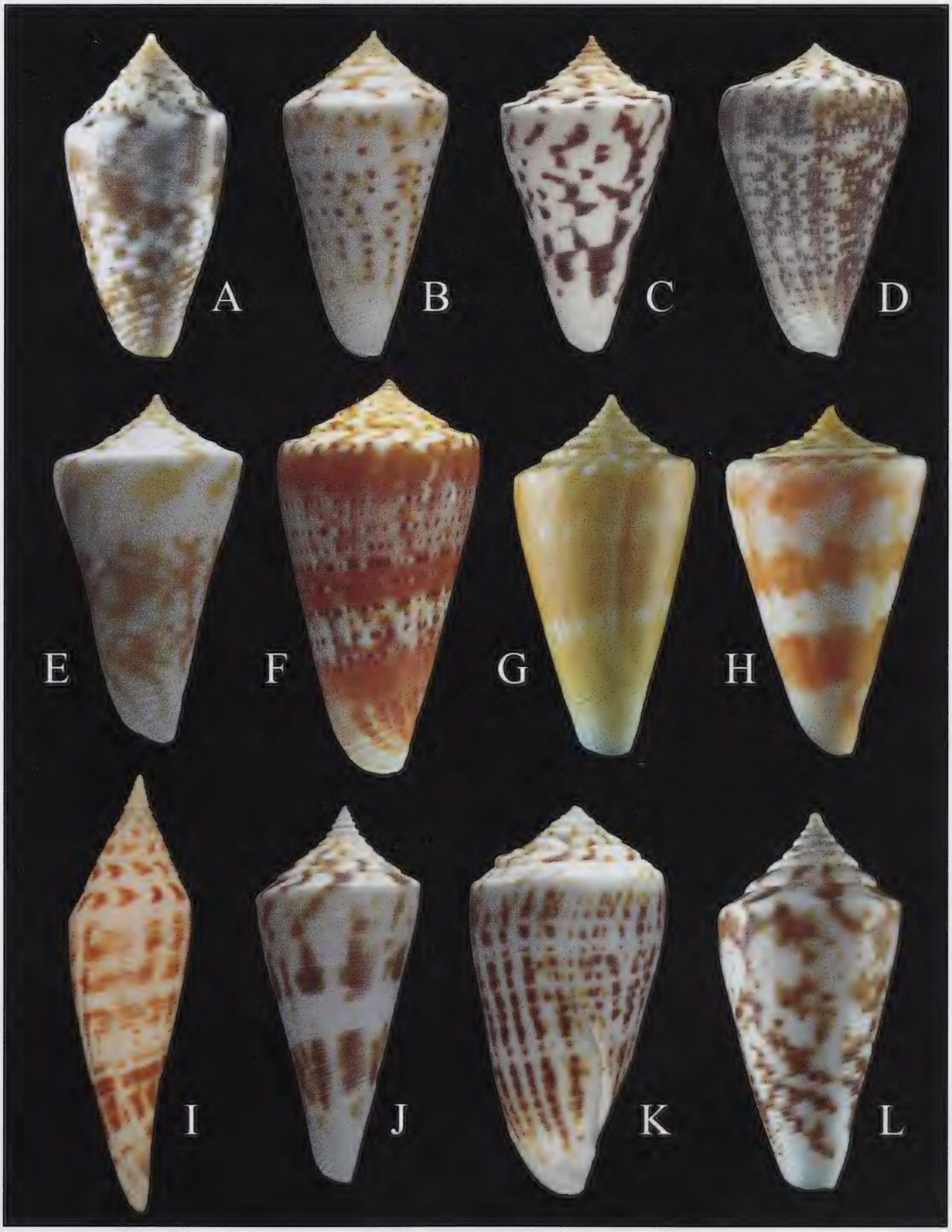

Plate 7. Southwestern Atlantic Paratropical Subregion, Paulinian Molluscan Province: Janeiran and Uruguayan Subprovinces. **A**= *Jaspidiconus simonei* Petuch and Myers, 2014, length 20.0 mm; **B**= *Lamniconus clenchi* (Martins, 1943), length 43.0 mm; **C**= *Lamniconus clerii* (Reeve, 1844), length 51.0 mm; **D**= *Lamniconus lemniscatus* (Reeve, 1849), length 52.0 mm; **E**= *Lamniconus patriceae* Petuch and Myers, 2014, length 45.0 mm; **F**= *Lamniconus petestimpsoni* Petuch and Berschauer, 2016, length 52.0 mm; **G**= *Lamniconus xanthocinctus* (Petuch, 1980), length 42.0 mm; **H**= *Sandericonus carioca* (Petuch, 1986), length 38.0 mm; **I**= *Dalliconus edpetuchi* Monnier, Limpalaër, Roux, and Berschauer, 2015, length 63.0 mm; **J**= *Conasprelloides capricorni* (van Mol, Tursch, and Kempf, 1967), length 45.0 mm; **K**= *Lamniconus carcellesi* (Martins, 1945), length 47.0 mm; **L**= *Lamniconus tostesi* (Petuch, 1986), length 34.0 mm.

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Sixth Annual West Coast Shell Show

The Sixth Annual West Coast Shell Show is scheduled for August 26th to 27th in the big show room in Balboa Park, San Diego. We anticipate a large number of exhibitors this year and hope that you will be one of them! Exhibit space is limited and will be assigned on a first-come, first-served basis, meaning that registrants who submit completed registration forms will be given priority in the order they are received and will be assigned space accordingly. Consequently, we recommend completing and submitting the registration form attached as soon as possible. The deadline for submission of your registration forms is July 10th. The room will be open to exhibitors and dealers at 2:00 p.m. on Friday, August 25th for set up. Exhibitors and dealers set up on the 25th. The event will be open to the public beginning Saturday morning at 9:00 a.m. Check the Club's website for further information and application forms.

Along with awarding our Exhibitors the usual trophies and ribbons for their prize winning exhibits we have a special piece of original artwork this year for the Festivus Award. This amazing piece of art was created by local artist LisaDawn Lindahl, entitled "Sacred Splash" which represents the living relationship between ocean, land and the diverse marine life of our beloved California coast. "In sculpting and designing this piece my hopes were to evoke memories of the hypnotic allure of water crashing on rocks as each `splash' is unique, like the fingerprints of the ocean." Original in bronze and granite.

2023 Festivus Award - Original Art entitled "Sacred Splash" by LisaDawn Lindahl

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Above are some photos of a few of our past winning exhibits - both scientific and artistic categories. Please note that the Festivus Award (shown on p. 144) is presented to the exhibit that, in the opinion of the Judges, represents overall excellence (*i.e.,* scientific contribution to Malacology and/or Conchology, rarity and condition of specimens as well as the design and aesthetics of the exhibit) and best furthers interest in shells and shell collecting. Dealers are not eligible for this award unless the exhibit is of their own self-collected shells.

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Some muricid “eye candy”

Zacatrophon goliath Houart & Löser, 2020, ranging from 70.1 to 84.9 mm in length.

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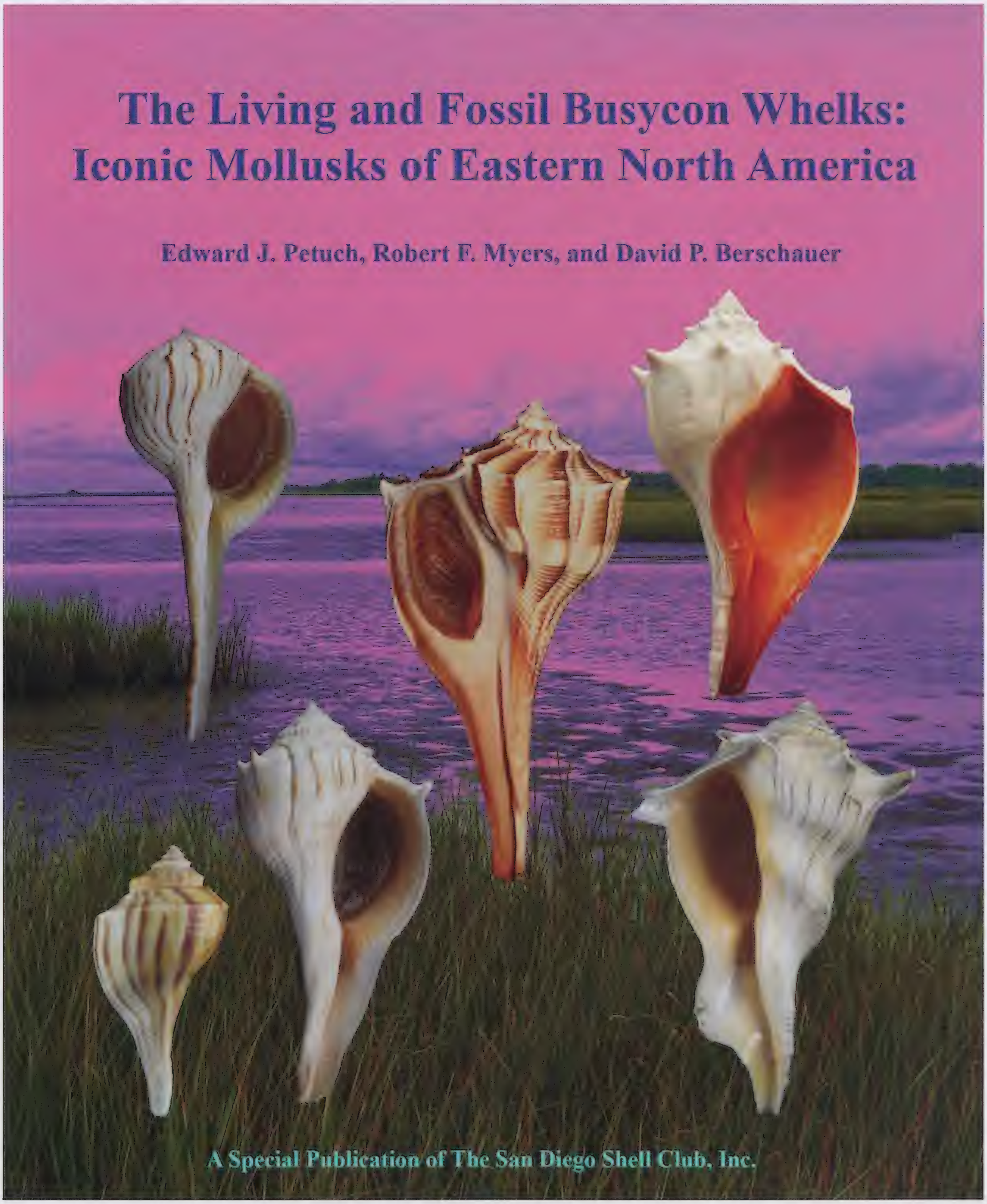
Volume: 55 THE FESTIVUS ISSUE 2


The Living and Fossil Busycon Whelks:
Iconic Mollusks of Eastern North America
Edward J. Petuch, Robert F. Myers, and David P. Berschauer
A Special Publication of The San Diego Shell Club, Inc.

Back by popular demand in hardbound edition. This book presents a taxonomic revision of the "Busycon whelks" with detailed information on 6 living and 8 extinct genera belonging to 4 subfamilies, and 17 recent and 112 fossil species, together with distribution maps and over 100 color figures. Priced at $100.00 plus tax and shipping costs. Third Printing.

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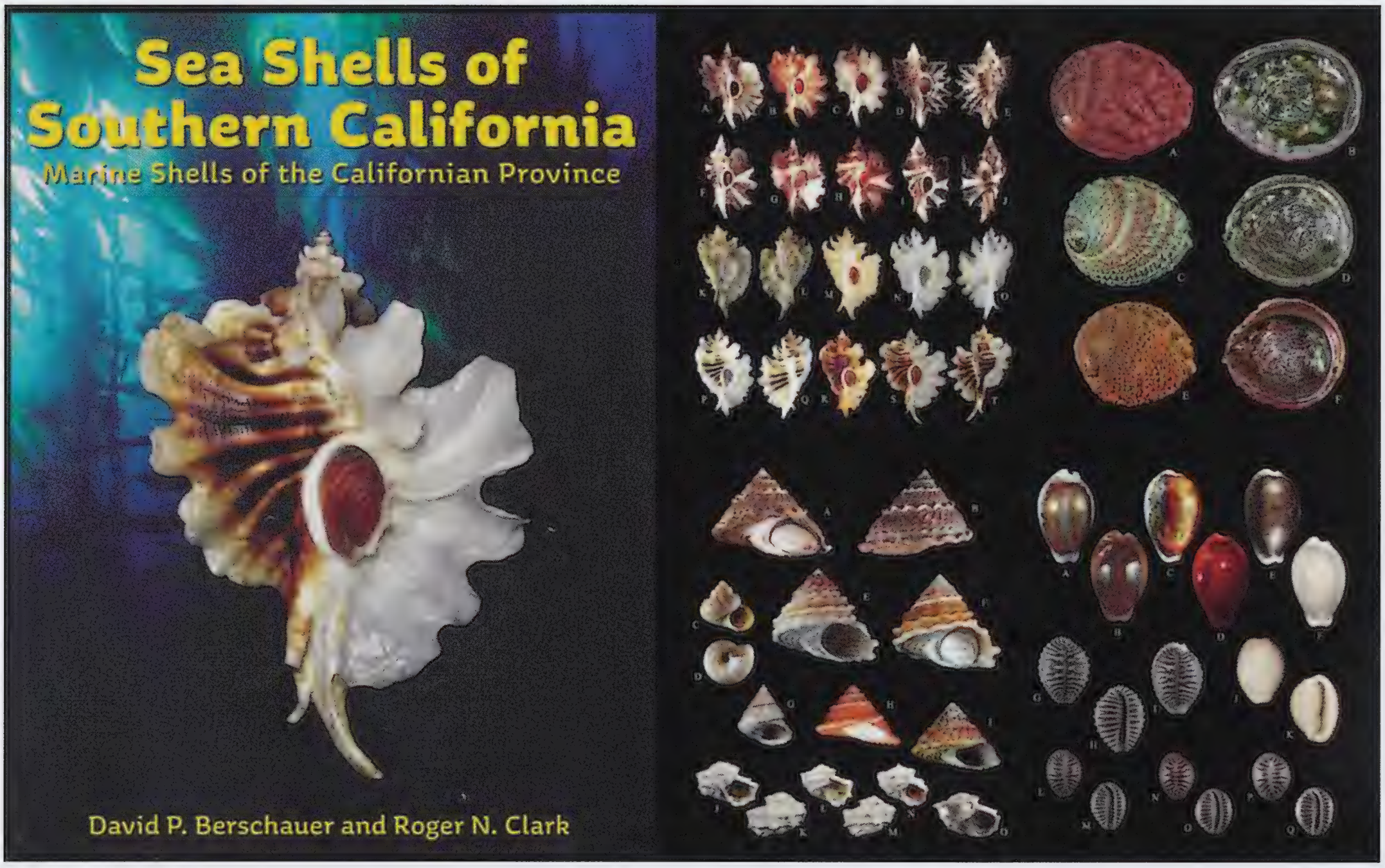
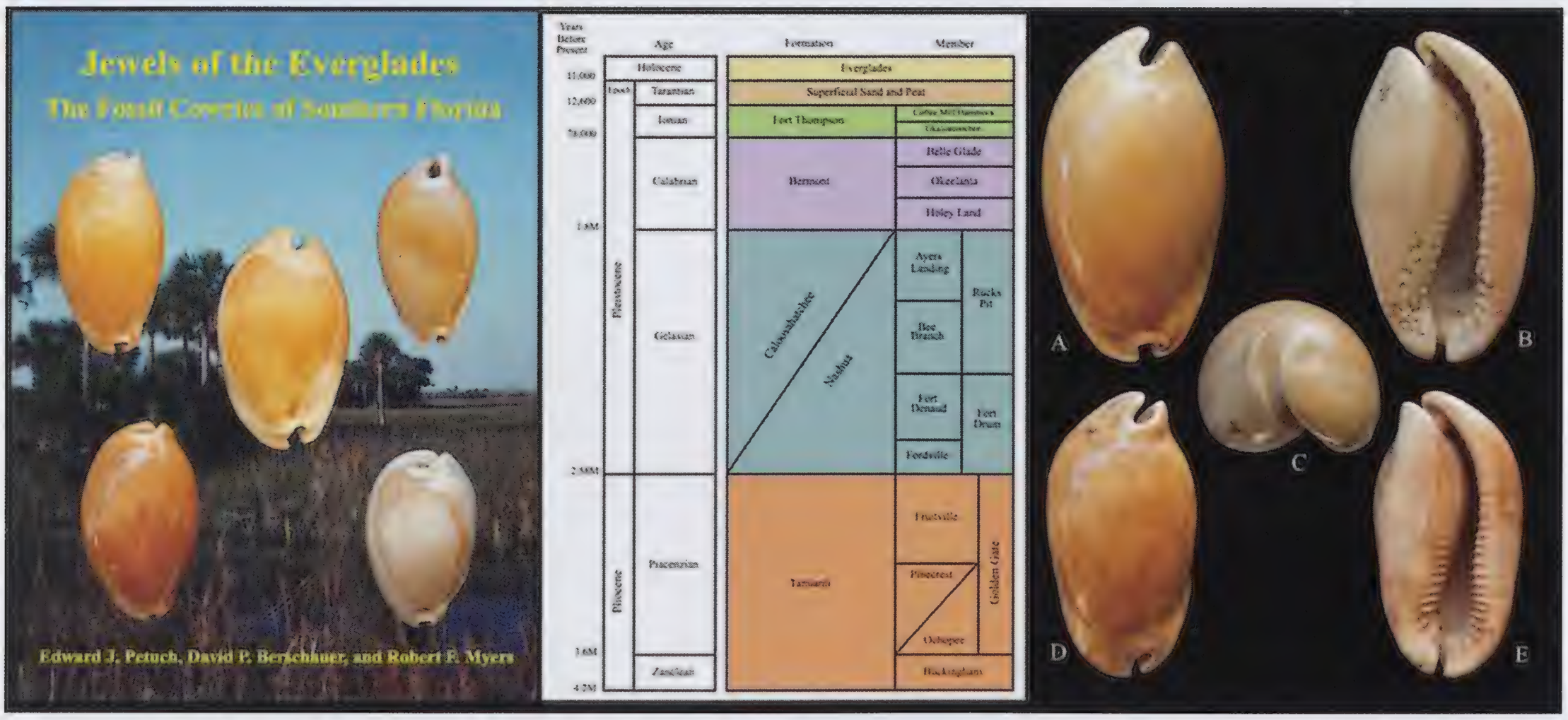


Back by popular demand in a third printing. This book presents a biogeographical overview and iconography of the regional molluscan fauna of the California Marine Province, covering 351 species of mollusks illustrated on 58 full page color plates. Copies are available in softbound ($35) and hardbound collector's edition ($50) plus tax and shipping costs.



Back by popular demand in a second hardbound printing. This book presents the first comprehensive taxonomic work on the Plio-Pleistocene Cypraeidae of southern Florida, the single largest radiation of cowrie shells on earth known from one locality. This book contains descriptions and detailed information on all four subfamilies, 11 genera, 14 subgenera, and 104 fossil species, together with details on the regional geology and field photos, and over 113 full page color plates. 247 pages. Priced at $100.00 plus tax and shipping costs. Exclusively through the San Diego Shell Club.

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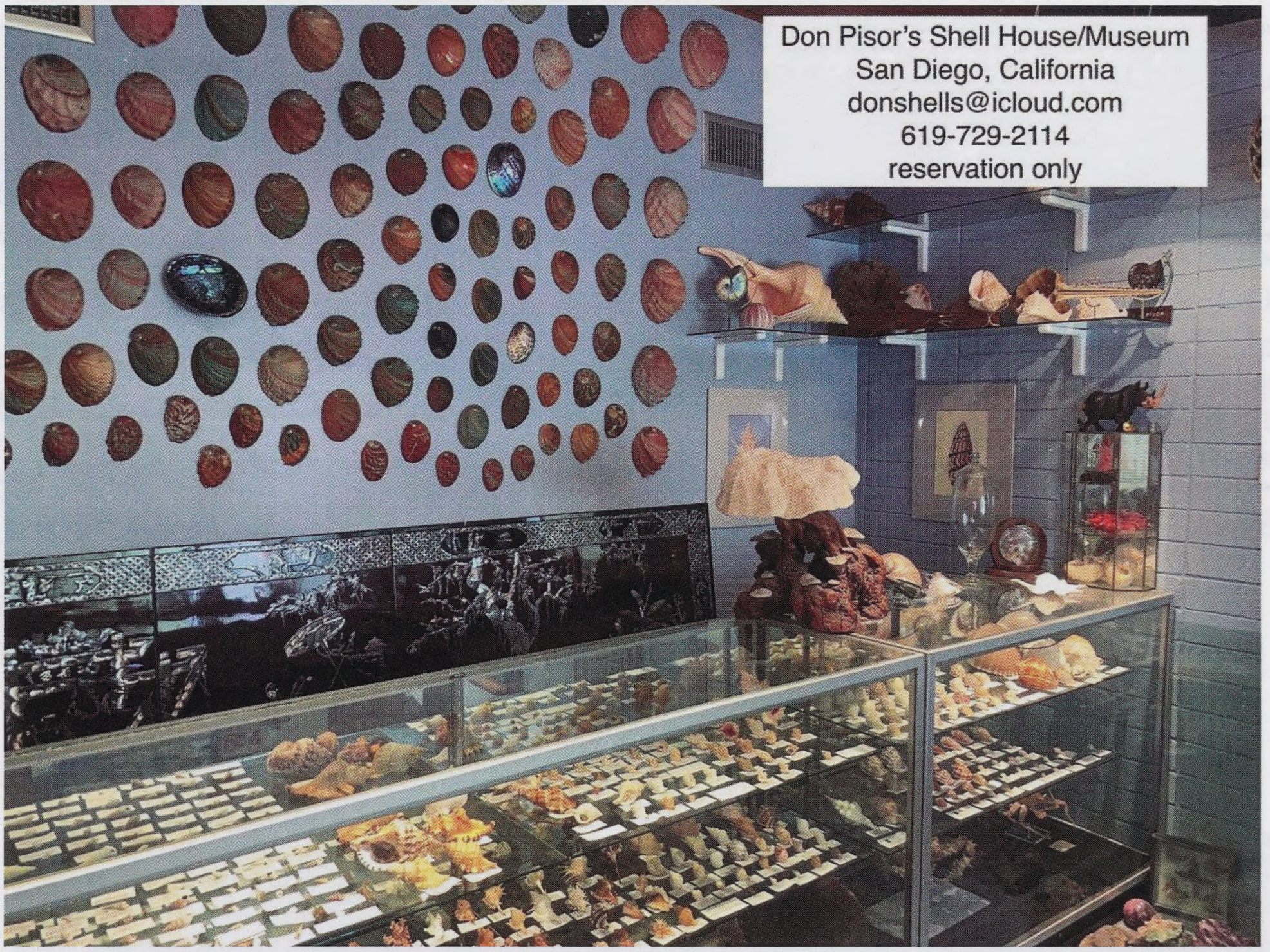

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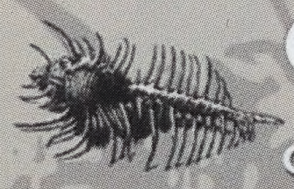

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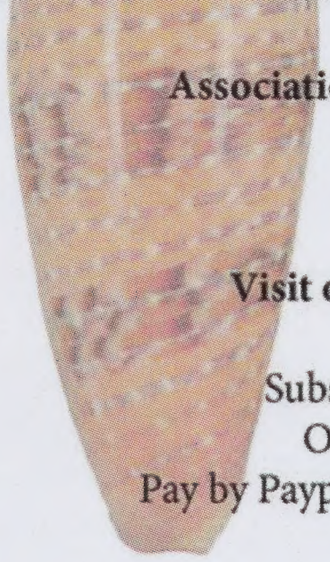

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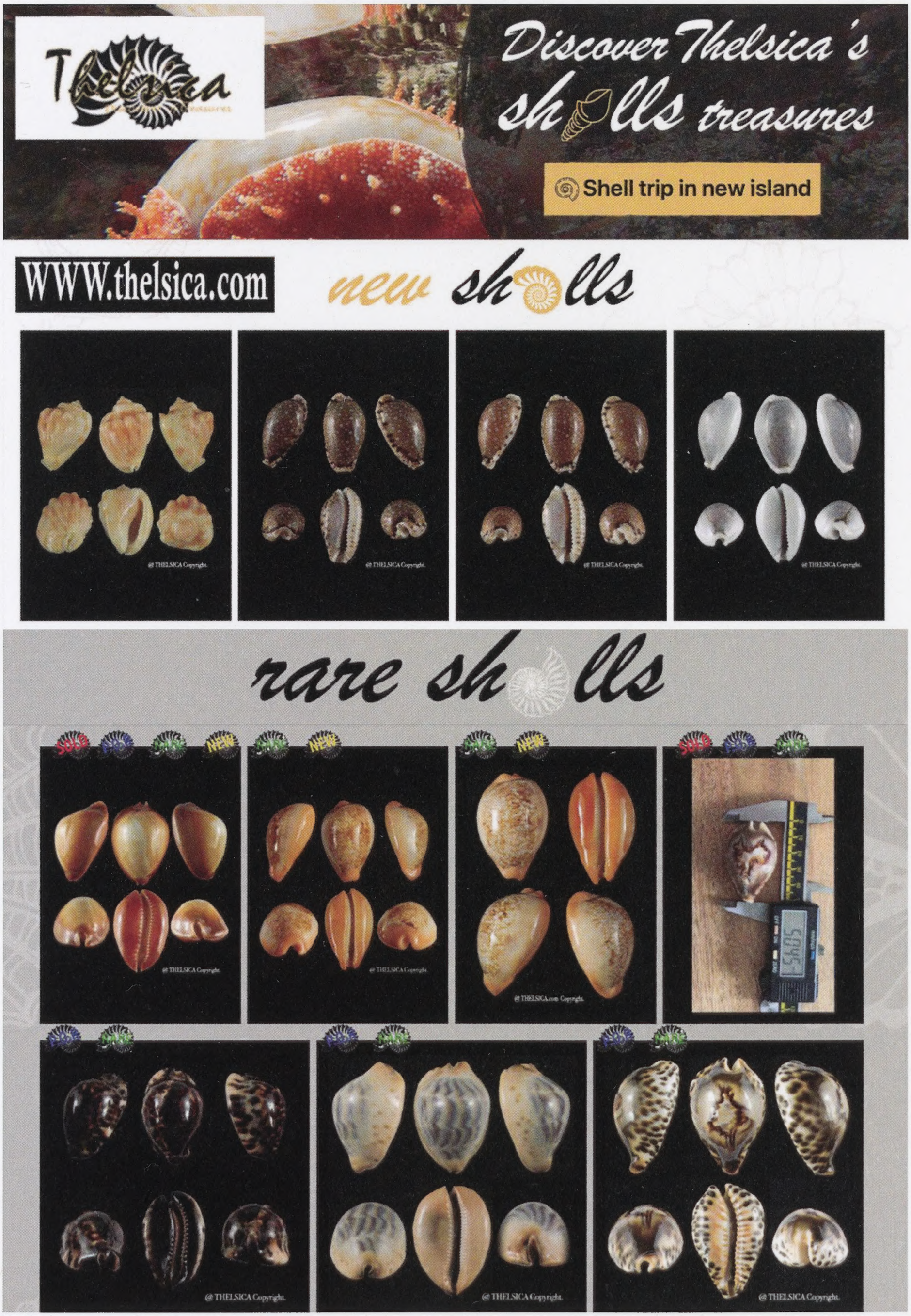

Back cover: *Fasciolaria bittneri* Petuch & Berschauer, new species, Holotype (red form) measuring 115.1 mm in length, Paratype 2 (orange form) measuring 117.9 mm in length, and Paratype 5 (black form) measuring 115.7 mm in length. (Photos courtesy of David P. Berschauer) (Cover artistic credit: Rex Stilwill).

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